

amateur radio action

March 1995

Oceania's Amateur Magazine

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Review:

Alinco's twin band DR-600T



Plus...

- Licence fees — a ripoff?
- Amateur awards — how to get 'em
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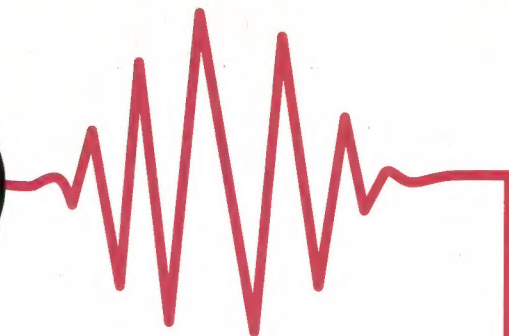
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March Issue - Vol 18 No 3

On Sale: 20 February, 1995

Special Features

- 8 EQUIPMENT REVIEW:** Neil Duncan, VK3ND, tries Alinco's new DR-600T twin-bander.
- 12 WEATHER SATELLITES:** Arthur Andrews, VK2AAE, continues his series on weather satellites and Remote Imaging.
- 16 LICENCE FEE RIP-OFF?:** Michael B. Corbin, President VK2 Division, points out some facts of life to the Minister of Communications and the Arts.
- 21 AUSTRALIAN DEFENCE FORCE RADIO:** Greg Baker reports on the ADFR, Australia's newest shortwave broadcaster.
- 26 EQUIPMENT REVIEW:** 1200 baud AX 25 was considered quick but AEA's PK-96 makes 9600 baud a cinch - Chris Edmondson, VK3CE, reviews the unit.
- 30 HERE and THERE IN AMATEUR RADIO:** "what do you do when the sunspots go away?", asks Paul Butler, VK3DBP - and then proceeds to answer the question.
- 36 AWARD HUNTING - WHAT'S IT ALL ABOUT?:** Jack Haden, V63JH/T30JH, has a long look at award hunting - and how to get the awards.
- 46 UPGRADED MORSE TUTOR:** Several years back we published a "morse code generator", created by Neil Duncan, to assist those studying for a licence. Here's the upgrade - with lots of bells and whistles.

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Regular Features

- 5—WORLD NEWSDESK:** Things you might like to know - a compilation of worldwide amateur news.
- 10—SUBSCRIBE to ARA** and save money.
- 24—PACKET:** John Day, VK3ZJF, on packet problems - what's going wrong?
- 29—YL FORUM:** Kirsti Jenkins Smith, VK9NL, and the ongoing CW bunfight.
- 40—GONE TROPPO:** Chris Davis, VK1DO, reports on some new records by VKs.
- 42—ABOUT SIX:** Steve Gregory, VK3OT, looks at recent happenings on "six" and thereabouts.
- 48—DX & BAND:** HF DX news from Jim Smith, VK9NS.
- 52—IOTA INFORMATION:** The latest Islands On The Air news from Jim Smith, VK9NS.
- 54—SHORTWAVE:** Craig Seager brings you up to date on short wave news.
- 58—DX UPDATE:** The latest on the DX scene - compiled by Len Shaw, VK3ALS.
- 60—PROPAGATION:** IPS shows likely DX conditions for March.
- 63—CLASSIFIEDS:** Great DEAL\$!!
- 66—ADVERTISE FREE** in ARA.

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WORLD NEWSDESK

23CM REPEATER NETWORK

Victoria is to host a network of interlinked 23cm repeaters, with the first machine, an **Icom RP-1220** donated by Icom Australia, already on the air as **VK3REO**. Its output frequency is 1273.150MHz, and it has a 20MHz positive offset.

Icom Australia's managing director, Kiyoshi Fukushima, told ARA he was delighted to be able to hand the new repeater, worth several thousand dollars, to the very active group of Melbourne 23cm devotees.

"I see this first repeater as the first part of a fully-interlinked scheme of repeaters in Melbourne," he said.

At present, **VK3REO** is undergoing testing and final antenna tuning at suburban St Albans, and it is due to be installed at its permanent site of Mount Bullengarook within weeks, joining existing two metre and 70cm repeaters on the site. It will be powered by a combination of solar and wind energy.

The new machine is due to be joined by a second 23cm repeater, **VK3RCQ**, within weeks. **VK3RCQ** will be located near Narre Warren, and will operate on 1273.200MHz, also with a 20MHz positive offset.

Meanwhile, the **VK3RHI** 70cm repeater is relocating to the Narre Warren site, where it is expected to give coverage out to Warragul and beyond. Early tests have shown the two sites to have an amazing coverage area.

The sudden flood of repeaters will grow yet further, when a third Melbourne 23cm repeater is installed at the same site as the current 70cm 'city centre' repeater, **VK3RCC**. An on-

air date for this extra machine has not yet been finalised, but its frequency will be 1273.100MHz.

All the 23cm repeaters are due to be linked together, with additional linking to some of Melbourne's many six and two metre and 70cm repeaters.

Still on the Victorian 23cm repeater front, after many years spent waiting for a single unit to hit the air, an unprecedented *fourth* 23cm repeater is expected to be operational in Melbourne before the end of this year. With Bullengarook located west of Melbourne (near Bacchus Marsh) and Narre Warren a similar distance to the east, the network will be considerably enhanced with an additional unit to the north. Sites under current consideration are Pretty Sally and Kinglake.

Anyone want to offer a site for the south?

NEW BEACONS...

- A new six metre beacon is operational in Melbourne. **VK3ROK**, located east of Melbourne at Narre Warren, entered service a couple of weeks ago on the frequency 50.0515MHz. Melbourne has not had a six metre beacon before now.

- A 23cm beacon is also fresh on the air from Melbourne. Presently operational from Burwood, the new **VK3RXX** is on 1296.530MHz, although it is expected to relocate to inner suburban Tottenham within months. The UHF/microwave gang hopes to have beacons operational on all microwave bands to 10GHz before the end of the year...

VNG LATEST

The **VNG Users Consortium** newsletter for December 1994 released some news on what's been happening at its transmitter site.

As you might know station **VNG** is located at Llandilo, on the outskirts of Sydney, and transmits on 2500, 5000, 8638, 12,984 and 16,000 kHz. The 2500 kHz service has been running on a Harris-gates transmitter but has reached the end of its life — luckily the group was able to buy an old 2kW replacement unit from broadcast station 2KA, as 2KA is now on the FM band.

The consortium has also managed to buy a 10kW HF transmitter from the NTA (National Transmission Agency). The sender was in use at

WORLD NEWSDESK is compiled from a variety of sources including American Amateur Radio Newline, RSGB broadcasts, the WIA, general Internet news and overseas amateur magazines.

Bald Hills, on the edge of the Brisbane metro area, and was decommissioned during 1994.

No announcement has been made as to when the transmitter will be moved or what its use will be.

THE 80M DX WINDOW

In discussions with the Spectrum Management Agency (SMA) during December last year, the WIA was told that, following their monitoring of the 80m DX Window, the SMA was not impressed by the many instances of disgraceful behaviour of a small number of amateurs who frequented the segment.

These operators are not giving fellow amateurs a fair go, with instances of deliberate interference to other local operators and other examples of inappropriate on-air behaviour, including out-of-band operation.

While the WIA's SMA Liaison team put forward a proposal to permit amateurs access to a wider band, between 3750 and 3800 kHz, the SMA pointed out that amateurs were faced with three choices:

- (1) retaining the present window,
- (2) expansion of the window, and
- (3) withdrawal of the window.

An SMA spokesman said the easy option was to withdraw the window and that this was a serious consideration, given the prevailing circumstances.

However, in discussions between the WIA and SMA, it was decided that if agreement could be obtained from the primary users in the segment between 3750 and 4000 kHz that amateurs might be able to share usage with them on a secondary basis, then the SMA might consider a submission for an increased allocation.

With the co-operation of the SMA, the WIA has obtained a list of primary users in this segment and is writing to them with a view to obtaining responses by the end of January in order to submit a new proposal at the earliest opportunity in 1995.

Meanwhile, the SMA is to continue monitoring the DX Window. Operators using it should note that the SMA has warned that transmissions must remain within 3796-3800 kHz, which effectively means that for

....

WORLD NEWSDESK (continued...)

SSB voice transmissions, the carrier of a lower sideband signal should be no lower than 3799 kHz in order to keep the transmission sidebands within the DX Window.

In other words, there is only one SSB voice channel available in the DX Window. Don't "hog" it, give other operators a fair go. Above all, make sure your transmission stays within the Window.

NEW SCANNER BOOK RELEASED FOR THE INTERNATIONAL TRAVELLER

Picking up on the popularity of scanning worldwide, a new book has been released in the States to cater for those who travel with their scanner in hand. **Monitor The World** by Rickey Stein is an ideal companion if you intend to travel the world.

This handy A5-size book contains over 270 pages covering 59 countries. The majority of the book is in frequency order under each country's name. All you have to do is look up the country you intend to monitor and look down the frequency list... it's that simple. Where necessary, background info is included before the frequency list on the band structures and details on some of the popular organisations you can listen to. Rickey has done a terrific job in getting some much-needed info together.

There is one dislike I have with the book. There is nothing on the US scene. That data can be found in another publication brought out by Rickey, called **Monitor America** (A\$34.95 which includes postage). Surely Rickey could have included some basic info on monitoring the US — just enough for the traveller to get started.

Thanks to Rickey Stein for sending me a review copy of the new title. Unfortunately, price details were not available at press time, but if you are interested you can write to Scanner Master, PO Box 428, Newton Highlands, MA 02161 USA, or phone Rickey on 0011 1 508 655 6300.

AN AUSTRALIAN AMATEUR BAND ON VLF?

The WIA is progressing with negotiations with the Spectrum Management Agency (SMA) for an allocation in the 160 to 190 kHz region for Australian radio amateurs.

Secondary use for amateurs is being sought for this band, which is presently used by radio navigation services.

The SMA told the WIA at a meeting on 5 December last year that they had written to the Civil Aviation Authority (CAA) who have responsibility for primary services operating in this band, seeking their comments on the WIA's proposal.

The CAA is yet to reply.

New Zealand amateurs are permitted to use the band 165-190 kHz, also known as 1800 metres, with a power limit of 5 W effective radiated power.

A few Australian amateurs have taken out experimental licences with the SMA and are conducting transmission and propagation experiments with homebrew equipment.

The WIA will continue negotiations with the SMA in an effort to obtain access to the 1800 metre band for Australian amateurs.

NEW TV/FM GROUP LAUNCHED IN MELBOURNE

A new FM/TV DX group was recently launched in Melbourne, to cater for those who enjoy chasing FM and TV stations outside their normal reception zone. The group is called the **ICDX**, and Robert Copeman, the group's creator, aims to cater for the growing number of people who DX outside the shortwave bands. With around 35 members so far, it aims not to be a club but an outlet where DX catches and broadcast news can be shared.

For the cost of one book of stamps (10 X 45¢) you will receive the newsletter **Crossfire**, with the latest news and loggings monthly. At the time of going to press, issue 10 had been released, with 10 pages of hot news and catches.

You can write to Robert Copeman at 10 Cratloe Road, Mount Waverley, Victoria 3149.

FURTHER CONCESSIONS SOUGHT FOR 50 MHZ BAND

The WIA is negotiating with the Spectrum Management Agency (SMA) for further concessions regarding the 50-52 MHz section of the 6m band, which is subject to a variety of restrictions. A detailed submission has been developed in consultation between operators who use this segment of the band and Federal Technical Advisory Committee

Chairman, John Martin VK3KWA.

Among concessions sought are permission to use the lower 50 kHz, from 50.00 to 50.05 MHz, use of the segment 50.2-50.3 MHz in restricted areas in the Eastern states, and use of "constant carrier" modes such as frequency-shift keying (FSK), with a suitable power limit.

Restrictions currently in force for the 50-52 MHz segment of 6m are detailed in the current Call Book.

The WIA is working towards a positive resolution in 1995.

KO-BIRDS BACK ON

On the satellite scene, word that the KO-23 and KO-25 ham satellites are reported to be back in at least partial operation, with the directories intact. Only downloads are currently possible. The ability to take public uploads seems to be disabled on both birds.

NO PRESSURE ON 2M AND 70CM BANDS FOR 2000 OLYMPICS

At a meeting on 5 December last year, the Spectrum Management Agency (SMA) gave assurances to the WIA that the Sydney Organising Committee for the Olympic Games were not planning to apply for temporary use of all or part of the 144-148 MHz and 420-450 MHz amateur bands. Executive manager of the SMA's Customer Services Group, Peter Stackpole (VK1RX) told the WIA that, after recent discussions with the Sydney Organising Committee, there was no hint of any impact on amateur bands. The Sydney Organising Committee had little requirement for spectrum space, he said, and what they were planning was covered by existing allocations.

The WIA raised the issue with the SMA as there had been persistent rumours circulating that the 2m and 70cm bands might be required for the Olympics, even if on a temporary basis. French amateurs lost the use of their 144-146 MHz band during the Winter Olympics held there several years ago.

The WIA has arranged with the SMA that, in future, where amateur bands are affected by any proposals for use of spectrum, that the WIA will be consulted at the time.

MASSIVE FCC REORGANIZATION

More pieces of the 1995 FCC reor-

ganization are now falling into place. The Wireless Telecommunications Bureau is now in existence and is the bureau which now administers the Amateur Radio Service.

Also of significance is the new Enforcement Division of 30 people within this Bureau. The ARRL says that this is another step in the direction of more and better enforcement of the rules.

LEO SATELLITES BOOM

Low Earth orbiting satellites (LEOs) will figure in global communications networks by the year 2000, according to an American academic.

Addressing the 1994 Australian Telecommunications Networks and Applications Conference held in Melbourne in the first week of December, Professor Bezalel Gavish of the Vanderbilt University in America, said that LEO systems would enable telecommunications providers to target any region in the world as a market.

Several telecommunications systems employing LEO satellite technology were in the planning stages, he said, and are expected to be operational by the turn of the century. The Iridium and Globestar systems are among them. Radio amateurs pioneered LEO satellite technology with the OSCAR series of satellites launched over the past three decades, joined in recent years by the British UoSATs, Russian RS-series, Korean and Japanese amateur satellites.

Orbiting at heights between 700 and 1500 km above the Earth, Professor Garvish says the LEO telecommunications systems had the potential to cause problems as they would enable network users to bypass local regulatory authorities.

Such LEO systems would cost some A\$5-13 billion to establish, Professor Garvish predicted.

EMC COMPLIANCE TO BE SET BACK?

The Australian Telecommunications Industry Association (ATIA) has proposed to the Spectrum Management Agency that the 1 January 1996 date for the introduction of the 'EMC Regime', requiring that electrical, electronics

and telecommunications equipment sold or manufactured in Australia meet mandatory spurious emission levels, be put back 12 months. The ATIA is the representative body for the Australian telecommunications equipment industry and is affiliated with the Australian Electrical and Electronics Manufacturers Association (AEEMA).

Their January newsletter, ATIA News, reported that their proposal had been circulated to the ATIA's divisions for discussion, and that they had met recently with Paul Elliott, the Parliamentary Secretary to the Minister for Communications, who has responsibility for spectrum management issues.

VICS CUT BROADCASTS

The Victorian Division of the WIA has announced that its weekly broadcasts are no more.

A disappointed general manager, Barry Wilton, VK3XV, announced on the first broadcast for the year that future broadcasts would be spaced by a month, rather than the weekly schedule maintained for many years. He blamed a demonstrated lack of interest from the audience and a fundamental shortage of useable news for the decision.

RD CONTEST WINNERS...

A huge effort from Victorian operators has seen the state take off the 1994 **Remembrance Day Contest** yet again.

The overall national winner — for the third time running — was Ray Cowling, **VK3ACR**, who operated for the full 24 hours on VHF and UHF frequencies. Former ARA editor Chris Edmondson, **VK3CE** and **VK3YID**, airing *both* of his call signs, came both 5th and 7th on the national scoreboard, with Packet Racket columnist John Day, **VK3ZJF**, splitting Chris' scores by coming sixth.

The formula for determining the winning state is not as simple as one might think. The primary determining criterion is that the state which shows the greatest improvement over its previous scores wins, so Victoria will *really* have to pull something impressive from the hat to repeat its win this year!

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Alinco has firmly established itself as a major competitor in the VHF and UHF amateur radio stakes. We have reviewed the odd example of its wares in the pages of this journal over recent years and have noted the increasing number of Alinco transceivers on the air.

On review here is the **DR-600T**, a twin-band FM mobile unit sporting

carry on. On the other hand, if you pull over you can do some nifty tricks from the mic.

The Alinco DR-600T
yet another twin band transceiver

For a start, direct VFO input. There are not all that many FM boxes which provide as standard a means of entering in a frequency via a numeric keypad. The buttons also allow for some remote functions which we will come to shortly.

usual 45/35 watts FM output on the 144 and 440 MHz bands respectively (no, that's not a 'typo', as you'll read), providing 28 memories (plus a few extras), a wide-coverage receiver including the AM 'air band' and a host of other features, not the least of which is a keypad on the microphone from which you may enter the VFO frequency if you wish.

On top of that, if you purchase the EDC-19 (or EDC-20) remoting kit, then the front panel is able to be removed from the DR-600T so that the radio can perform the increasingly-necessary 'split' trick for your car, putting the rig at the back and the control head at the front to conserve room.

As neither kit was supplied for review, I didn't investigate any aspect of this advertised facility.

On the other hand, there is also a gaggle of other 'remote control' tricks you can perform on the DR-600T but, more of that later.

Setting up

Unpacking the DR-600T reveals a rig of conventional size and shape, typical of a rig for the 'nineties, with plenty of buttons on the front (23) and a substantial heatsink with a miniature fan on the rear panel.

Separate antenna sockets mounted on flying leads emerge from the back. There's one for each of its two bands, with an N-type connector for UHF. If you wish to utilise a single, dual-band antenna on your car you will need to purchase a suitable duplexer unit. The microphone supplied as standard plugs into a conventional eight-pin front panel socket. What is a little unusual about the microphone, though, is the presence of 24 buttons plus PTT key on it.

I'm not so sure about all those buttons. The best you can hope for while driving along on a dark rainy night is some tactile diversion, as they beep and

Anyway, having found suitable antenna connectors, I plugged the well-adorned microphone in and fixed the substantial, double-fused DC lines to the shack power supply and found myself in business. Switching the unit on brought me to a state of 'factory-set parameters' with things all set up, ready to go. Twirling the VFO knob quickly took me to my usual simplex channel and, after some squinting and extra illumination, a quick read of the front panel markings easily put me in command of the local two metre repeaters as well.

Changing bands (between two metres and 70cm) is a piece of cake. There are two buttons marked 'VHF' and 'UHF' which seems pretty unambiguous to me, and these allow you to flip between the bands nicely. The large, orange back-lit panel shows both frequencies in use with the active (transmit) band having a little triangle thing pointing at it. I note that while the transmitter gives you the full two metre band, only 440-450 MHz is enabled on the 70 cm

band. Those of you who are not familiar with this country's 70cm amateur allocation may vaguely recall that it covers 420 to 450 MHz. It is broadly divided into two channels of fast-scan amateur TV, plus various repeater links and packet BBS links on the bottom and top 10 MHz — with everything else sandwiched in the 10 MHz from 430 to 440 MHz. Repeaters, beacons, satellites, DX... in fact, *everything* else lies between 430 and 440 MHz.

Perhaps ours was an early example of the radio as we actually collected it from the federal WIA office, where it had been submitted for type approval. However, if approval has been granted on a radio covering 440 to 450MHz on UHF, that is how it *must* be sold in Australia to be eligible for the import duty relaxation. Very strange...

Anyway, pressing any front panel button invokes a three-tone sequence, which is a little twee in my opinion. At least it could have been a different sequence for each button, as this would have helped sight-impaired amateurs. Anyway, those musical efforts are a) able to be disabled (thank heaven for small mercies) and b) are nowhere *near* as annoying as the beeps which you can organise to be emitted every time the squelch is opened!!

In that mode, it sounds like real lunar-lander stuff.

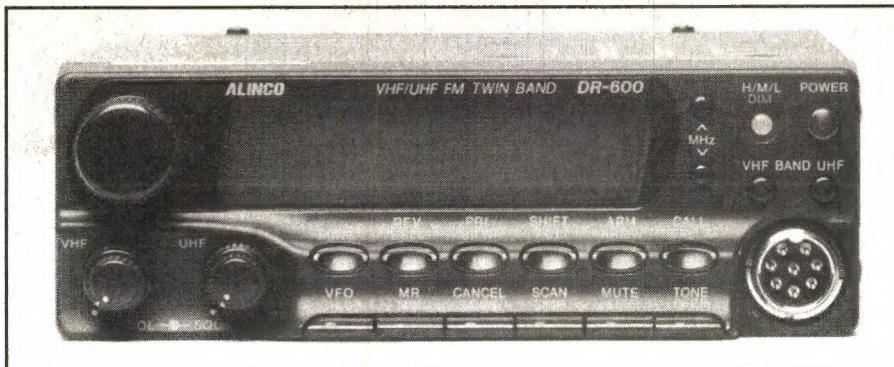
For mobile and conventional use of the rig, I found no problems at all getting the DR-600T going without actually needing to make reference to the manual at all. Using the ordinary 28 memories was simple, even allowing for the fact that they are shared between the bands (ie there is not a discrete set of memories for each band). My favorite repeaters were entered in a jiffy — especially with that keypad entry facility. I don't know who is next to use the review rig but they will know where my favorite spots on the bands are!

On air

Before a discussion of what it is like getting this radio on air, let's get my three gripes about the DR-600T out of the way:

First, I have a major complaint about one aspect of the ergonomics of the set. Having that little VFO knob so close to the squelch and volume controls means that you stand a chance of bumping the frequency every time you adjust volume, and you will almost always certainly flatten the house with audio (probably at midnight) whenever you adjust the frequency in a rough manner.

Second there is the matter of the



quality of the transmit audio. No, I won't harp on about how hordes of companies should send spies deep inside the Kenwood factory to see how they manage to get Kenwood transmit audio so good and no, I won't give a lecture on how FM is supposed to sound better than SSB or even AM. But really, Alinco, the transmit audio from the DR-600T is just a little untoward and would greatly benefit from some further design work.

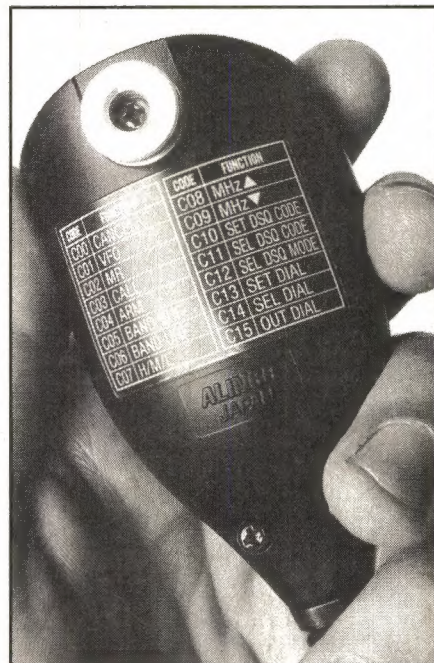
Third, there is the matter of cross-modulation and unwanted signal breakthrough in the receiver. When operated inside the amateur bands, the level of pager interference I experienced on the DR-600T is fierce. Granted that pager interference is rife on *virtually all* amateur rigs but this Alinco could certainly do with some better front-end filtering. And what if the receiver is operating *out* of the amateur bands? Well, in fairness, page 4 of the manual says it all: "No guarantee, either specific or implied, will apply to any function or specification outside of the Ham Bands.". I've never seen such a warning in an amateur rig's manual!

With that little lot out of the way, let's look at the good attributes of the DR-600T and yes, there *are* a lot of them. First, the DR-600T does indeed sport superb front-end sensitivity (there we go — the compromise between cross-modulation/pager interference and sensitivity raises its head again). Second, the versatility of the DR-600T is simply remarkable.

Perhaps a list of some of the goodies lurking behind the dark and innocent fascia may help here.

You are offered...

- a wide-band receiver built into the set. You get 108-143 MHz (AM), 130-174 MHz (FM), 400-520 MHz and 810-999 MHz (FM) which, I think you will agree, covers a multitude of listening.
- three transmit power levels 45/10/5 and 35/8/4 watts respectively on 144



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The Alinco DR-600T

(continued from previous page..)

and 440 MHz and yes, that *is* useful.

- separate call and priority channels.
- 10 additional, but restricted 'repeater' memories.
- scan modes called band, program, memory and special repeater memory modes with separate automatic options for each.
- 16 functions which can be controlled from the microphone separately from the PTT and up/down buttons. These include memory/VFO, power level, band, channel or 1 MHz up/down and various 'autodialler' options should you be an adventurer with the US telephone system.
- separate volume and squelch for the two bands.
- mute for the non-priority band if required
- ABX 'Automatic band exchange', allowing the active band to be automatically selected according to input signals.

The manual is a bit coy about how to get the DR-600T into what I have referred to as the wide-band receive mode. In fact, it asks you to use a 'simple modification'. That simple modification turns out to be a nothing more than a second press of the VHF or UHF button. 'Beep' and you are in wide-band mode. Press the same one again, and you are back in an amateur band again, right where you were before. I note that the buttons on the microphone allow you to key in only for the wideband segment or amateur band you happen to be in, too. That's good.

Remote operation

As I noted before, there are some excellent facilities on the microphone. If you press the **C** button followed by a button sequence (they are printed on the back of the microphone), you will find yourself controlling some of the functions of the rig. If you have a CTCSS decoder board installed, one of the prime attributes of the rig (or, in Alinco's words, making it "the most powerful radio ever made") is at your mercy. It seems that you will then be able to perform such remote control tricks from a different rig, *on air*. Now, whilst I can't see the value of that for my simple uses, I am sure there are those who will. I couldn't try it out because the review rig did not have the decoder board and I didn't happen to have a second DR-

Specifications

Price: \$1249

General

Price:

Frequency coverage (receive and transmit): 148 MHz — 147.995 MHz
440 MHz — 449.995 MHz

Frequency coverage receive only: 135 MHz — 173.995 MHz
425 MHz — 469.995 MHz

Frequency coverage receive only, some of which is 'not guaranteed': 108-143 MHz (AM), 130-174 MHz (FM), 400-520 MHz and 810-999 MHz (FM)

Modes: FM (with some AM receive).

Antenna impedance: 50 ohms.

Memories: 28 (10 extra ones for repeaters)

Supply voltage: 13.8 VDC

Current consumption (typical): RX 0.8 A, TX 10 A or below.

Size: 150 x 50 x 178 mm (WHD)

Weight: 1.5 kg.

Transmitter

Output power: 45/10/5 watts selectable on 2 metres

35/10/4 watts selectable on the 70 cm band.

Spurious radiation: < -60 dB or better.

Duplex operation with offsets available in 5 and 12.5 kHz steps between 0 and 10.995 MHz.

Receiver

Circuit type: Double conversion with 21.6 or 30.825 MHz (VHF/UHF) and 455 kHz IF frequencies.

FM sensitivity claimed for 12dB SINAD: better than 0.1 µV

Selectivity (-6/-60 dB): 6/12 kHz FM

AF output: 2.5 W into 8 ohms.

600T to try it out with. But anyway, it's all been done before (eg Icom IC-2410, several years ago to boot), so Alinco's claim is possibly just a little excessive.

A real eyebrow-raiser in the radio's repertoire of tricks is invoked if you hold FUNC and press the VHF button. The device becomes a cross-band repeater or, in the language of Alinco's manual, a 'vehicle extender'. I reckon that this feature will be a real bonus for bush-walkers and the like in countries where unauthorised repeaters are legal. I shall, um, pretend I didn't note the facility to create your own highly illegal bi-directional repeater and will move on.

There are some pretty sophisticated paging facilities in the DR-600T. I guess it may bore some to go through them all, but all manner of secret codes, 'silence until you are called' tricks and other related goodies are available if you want them. Most HTs have them, but not all mobiles. Frankly, I personally think that they're a total waste here, but should you want them, such subtleties as autopatch autodialler, DTMF monitor, DTMF security code, DTMF squelch, 'DSQ' and DSQ paging all add up to great fun if a) that's all that grabs you and b) you have the appropriate decoder boards. I note again that while encoder facilities are supplied as standard, decoder facilities are not.

To invoke those kinds of tricks, the user manual will definitely be necessary. Up until this point though, it wasn't —

the DR-600T almost drives itself.

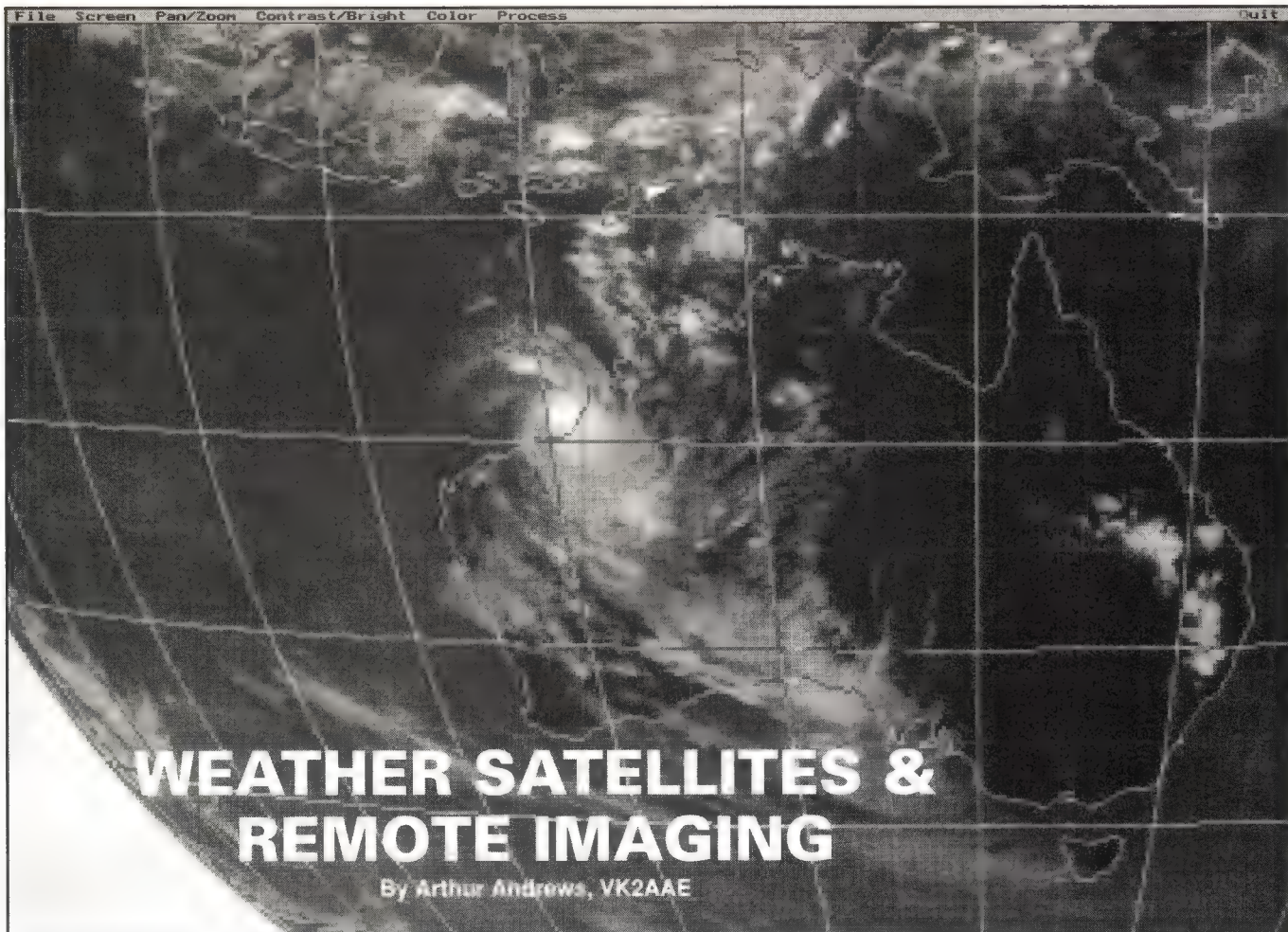
The manual isn't too bad. Its language is clear and crisp and its 42 pages contain all the data that you could possibly want. Don't expect to be entertained with diagrams, pictures and little hands pointing things out for you, or anything like that, though. This is a *really* down-to-Earth manual. Actually, it is a very good manual indeed... but it's fair to presume that it probably didn't cost Alinco very much.

Summary

Dual (or 'twin' in Alinco speak) band gear is in high demand. The DR-600T has the added advantages of a remotable front panel, really wide-band coverage, some really nice tricks with respect to frequency entry, control and memory, plus a wideband receiver. There are (just) sufficient memories and the scan, priority and call facilities are excellent. I found the rig easy to operate, and rarely needed the manual for the most common of operations. In fact, the design of the DR-600T is quite thorough in its well laid-out offerings of facilities and in the simplicity of its general operation.

So what about the shortcomings I mentioned? I can imagine some of its users being quite forgiving about some of the shortcomings exhibited by the DR-600T. No doubt they will add up the pros and cons and come up with their own decision...

EQUIPMENT EVALUATION.....



This is the last of the full-scale articles on weather satellites for the time being, but the good news, for those interested in this hobby, is that ARA will continue to publish a Weather Satellite News page every month. It is also hoped to do full-scale articles on specific subjects from time to time.

Writing these articles over the past few months has been a very satisfying experience for me, and I thank all those who have written, and continue to write, of their experiences. I must thank Steve Galowski for his faxes from time to time with snippets of news that I might have otherwise missed.

I hope that the new monthly column might serve as a pseudo Remote Imaging Group catalyst until we can form a proper group.

Readers are invited to write to me with their experiences which might be of help to other readers who are just becoming started in the hobby.

I have had a couple of queries from readers regarding using a TV satellite receiver for the reception of GMS pictures, and quite honestly I have no idea

whether it would work or not. Personally I don't think it would — not without extensive modifications, anyway — but I could be wrong. Certainly, some of these receivers can be tuned up to 1.6 GHz, and by using a LNA like the type produced by Peter Williamson, maybe a signal would be received, but whether it would be a *useful* signal is a matter of conjecture.

Harold Achatz, who wrote to me on this subject, said that he had been told that some people were using this type of equipment to receive GMS, and if this is so I would be very interested to hear from anyone who is actually doing it, as it may be of help to other readers.

In my last article I touched on receiving **High Resolution Picture Transmissions** (HRPT) from the NOAA satellites. Since then I have received an interesting letter from Peter Williamson in Queensland. Peter is experimenting in this area, and most of the hardware he has designed is near to completion. His initial tests have been most encouraging.

Although software and a data card are available from abroad, Peter is hopeful of developing an Australian

HRPT system, with Michael Delahunty helping out with the software. However, Peter is having a problem with obtaining information regarding the data card for HRPT and wonders if there is anyone out there who may have made a homebrew card for this mode.

Peter would welcome any information in this regard. If anyone can help, please send details to Peter Williamson, 6 Cuthbert Street, Albany Creek, Qld 4035. When Peter has everything up and running I hope we can persuade him to write an article for home constructors. How about it Pete?

The cyclone season has been pretty much a non-event so far this year, with only two of any significance captured at the time of writing in January. **Cyclone 'Vania'** was tracked between November 13 and 18 on the other side of New Caledonia, and from my location was only visible on GMS images. **Cyclone 'Annette'** put in an appearance on December 15, crossed the coast between Broome and Port Hedland on the 18th, and became a rain depression on the 19th. A picture of 'Annette' crossing the coast taken from GMS 4 is shown above.

The long-awaited launch of **NOAA J**, (**NOAA 14**), at the beginning of December did not appear to have happened, much to the disappointment of avid satellite watchers. At the time of writing there appears to be very little information available as to why the launch was delayed (that's if it was), and when the next launch date is scheduled.

NOAA 10 was turned off in early December and reactivated on the 29th. On the first images received after turn-on I was interested to see that during the early evening pass it was transmitting Channel 1, the true visible light sensor, instead of the normal Channel 2. However, as the sun was low in the sky at this time the visible light channel showed very little detail, but it is the first time that I have noted Channel 1 in use with the NOAA satellites.

In October the Russians launched an **Okean 4** series weather satellite which is transmitting on 137.40 MHz. Although I have been monitoring this frequency continuously I have not heard it, and presume that it is not switched on when passing over Australia.

It has been received in the UK from time to time, so it is obviously working. It would be an interesting satellite to capture as it uses a side-looking radar sensor.

Also in October, Russia launched its first Geostationary weather satellite, which will be set in its position of Longitude 76 East.

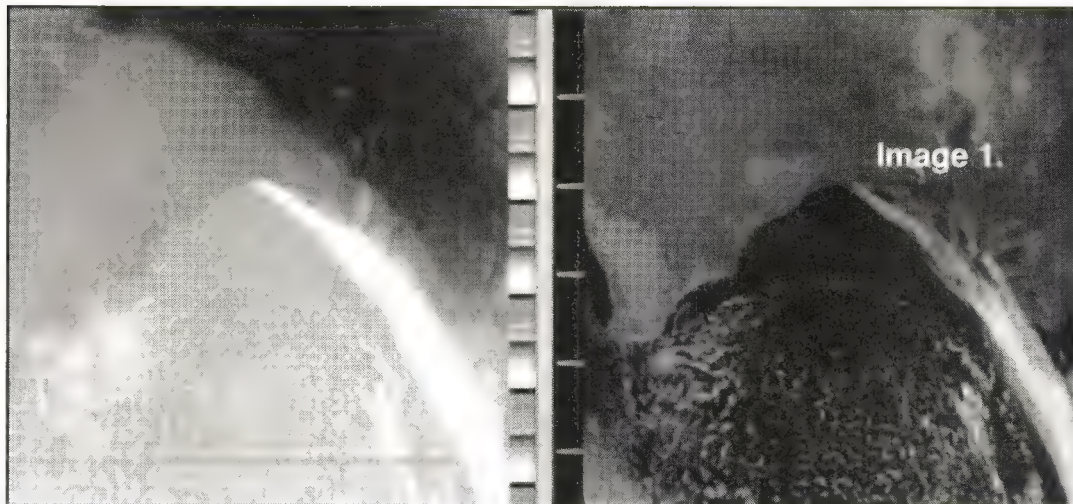
Although it won't be visible to us in the eastern states there is a possibility that it might be just visible from the extreme west coast, but you would need to have a *mighty* big dish to capture any signal from it.

GMS 4 is due to be replaced this coming year but as yet I have not any information when this will occur.

Interpreting the images...

As this is the last article in the series, I thought a section on **enhancement** and **interpretation** of the satellite images might be interesting. I've supplied more pictures than usual this month, so I hope the Editor has found room for them all.

I have had several inquiries from readers as to how the images are printed in the magazine with such good resolution. I can claim no credit in this regard and it is due to the skill of the ARA staff.



All I do is send the images on a disk in TIFF format, and they do the rest!

(Arthur is possibly forgetting how many amateurs have tried looking at wesat pictures picked up on multi-mode amateur TNCs like the MFJ-1278, Kantronics KAM and AEA PK-232. I can tell you from experience that these devices, while easily capable of demodulating the signals, do not offer anything like the excellent results Arthur has sent in over the past few months. Ed.)

For printing of my own images I use an Epson Stylus Colour printer which gives excellent results, especially in the 720-dpi mode.

Whilst just looking at the satellite pictures for cloud and weather details can be very interesting, a great deal of enjoyment can be gained from graphic enhancement and interpretation. In this regard a lot will depend on the quality of the received signals, the satellite capture software and the graphic enhancement program used.

Some capture programs have a whole lot of enhancement features included which allow you to manipulate images without recourse to another enhancement program.

Most capture software now available allows you to export graphics in one or more of the standard graphic formats to other programs.

To allow greater printer versatility I normally export my pictures to a Windows-based graphics program (**Prolmage Plus**), for printing or further enhancement if needed.

Enhancement can be used for two purposes:

- a) to make the pictures look nicer with false coloring, or
- b) to aid in the interpretation of weather satellite pictures by assigning different colors to different temperature gradients for the study of sea currents and the like.

Advanced software has such features as NOAA curve enhancements which highlight various meteorological parameters so they may be studied in depth. Although the near visible light pictures will give you the most spectacular cloud and land feature graphics, for serious study of meteorological phenomena, the NOAA infrared images provide the most information.

To provide some insight to enhancement and interpretation techniques I have included some examples below:

Image 1. This is a typical split image received from a NOAA satellite, and shows a weather front moving across the Bight. (As a matter of interest, this front arrived over Tasmania just before the arrival of the maxi yachts in the Sydney to Hobart race, and prevented the leader from breaking the race record).

The image on the left is taken from the Channel 4 infrared sensor, while the one on the right is from the Channel 2 near infrared sensor.

The speckled cloud behind the front indicates that it is a very cold air mass. The interesting point to note is that while the visible light picture shows the land mass evidently in the clear, the infrared picture actually shows the intrusion of the colder air behind the front which would not be visible to the naked eye.

By using the temperature-reading feature in this particular software I was able to determine that the temperature near Lake Eyre at this particular time was around 40°C while, on the other side of the front, readings of about 25°C were obtained.

With color enhancement, the difference in temperatures could be dramatically shown.

Image 2. The morning of Tuesday, December 13, 1994, was virtually cloud-

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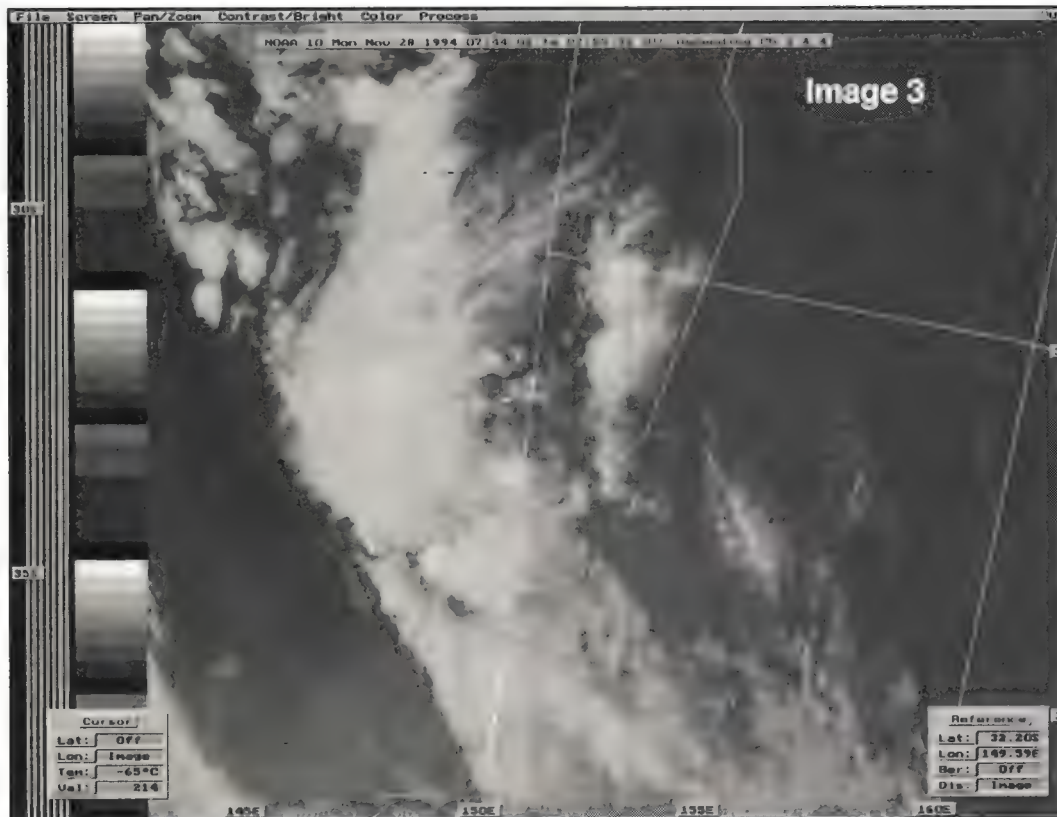


WEATHER SATELLITES & REMOTE IMAGING

(continued from previous page...)

less and exceptionally still — so much so that the condensation trails from commercial aircraft passing over our

location at around 35,000 ft stayed visible for some considerable time, gradually spreading out.



Even so, you can imagine my surprise when looking at the infrared picture transmitted by NOAA 10 on its morning pass I identified faint lines which appeared to be condensation trails. These were not visible on the visible light picture.

I enlarged and enhanced the graphic to get a better view and came to the conclusion that these lines were *not* due to natural phenomena, especially as two of the lines actually intersect. I had not seen these type of lines before and have not seen them since, so I can only put it down to peculiar climatic conditions on that day allowing the condensation trails to be seen by the satellite.

I have heard of condensation trails being seen on HRPT images but never on APT images. Well there is always a first time, I suppose... (By the way, the time shown on the satellite image is UTC).

Image 3. In the early evening of Monday November 28, 1994, the local radio station started broadcasting severe storm warnings in relation to thunderstorms forming in western NSW. At about this time I captured the infrared image from NOAA 10 as it passed over our location, which is shown as a small white dot in the center of the image.

The image showed the large amount of cloud being generated by these storms, but the individual storm cells could not be identified.

By using one of the available NOAA enhancement curves included in the software, I was able to isolate and identify the main storm cells and their intensity, and also plot their bearing and distance from my location.

Image 4. This is exactly the same image as number 3, but it has been enhanced using a NOAA enhancement curve to highlight the individual storm cell activity.

All of these images were captured using the internally-fitted Wefax Professional receiver/decoder board and enhancements were performed with the Qfax software.

Well, in the words of that immortal wabbit, Bugs Bunny... "That's All, Folks!"

I do hope that you have had as much enjoyment reading these articles as I

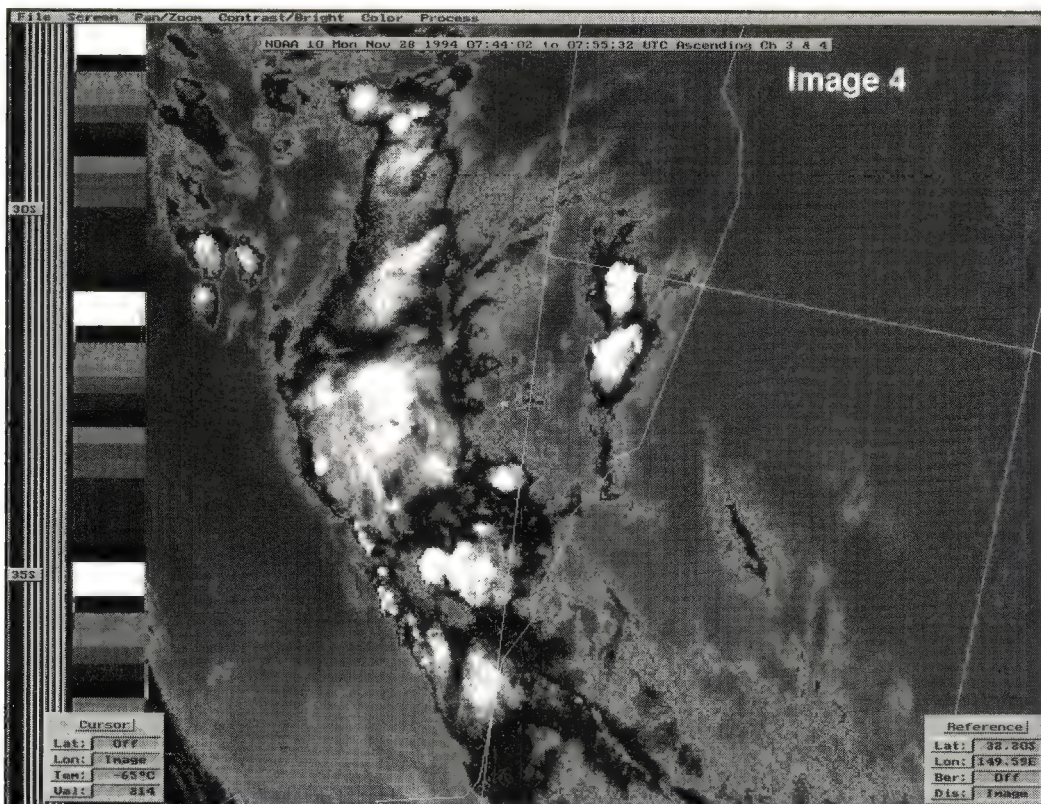
have had writing them. There are a lot of things which were not treated 'in depth', and probably a lot of questions remain unanswered. Quite a few of the people who have written to me suggested that I should write a book on the subject and this I am considering, providing I can find a publisher who thinks it would be worthwhile.

My offer to readers to write to me with questions or problems which I may be able to help them with still stands, but please include a SAE.

I am looking forward to continuing with the monthly Weather Satellite News column and will try to include as many hints, kinks, pictures and answers to problems as possible.

I have also compiled a listing of suppliers of weather satellite equipment and software world-wide, with comments as to the performance of the products where I have had the opportunity to test them. This listing is available for \$5.00 to anyone who is interested.

Arthur can be contacted at 30 Araluen Road, Wollar, NSW 2850.



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AEA

- PK12 Vhf Packet
- PK96 High Speed & Vhf 1200 packet
- PK232 Multi-Mode Data Controller

PacComm

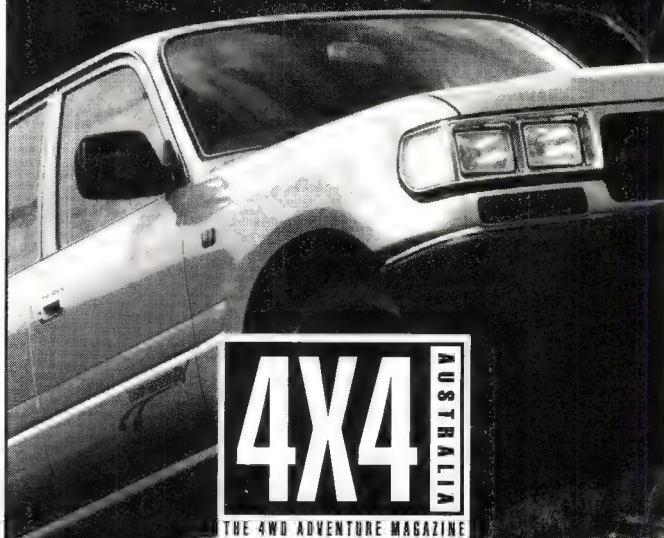
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From its earliest days of convict settlement, Australia has had a long history of depending on unpaid and volunteer organisations for some of its most important emergency functions. For example, the Bushfire brigades and the State Emergency Service represent just two. In times of natural disaster, on many occasions, both in this country and overseas, communications has only been possible through channels provided by unpaid amateurs.

The radio amateur service remains a national resource not only for dealing with natural disasters but also as a repository of technically competent persons available as a source of operators for military and quasi-military purposes. In addition, the impact of communication technology on the youth of Australia has over the years directed many capable persons into the path of science and very much to the national advantage.

THE LESSONS OF HISTORY

During the 1930's, Adolf Hitler decided that such dangerously free-thinking organisations as the German radio amateur clubs were a danger to the intended thousand year Reich. Accordingly, he had them systematically closed down in favour of amateur flying and gliding clubs which ultimately became the genesis of the Luftwaffe.

By contrast, the United Kingdom continued to support its radio amateur community until the start of the Second World War.

Upon its outbreak, many of the British radio amateurs were taken into the forces as signallers but perhaps even more importantly, many of them were absorbed into military related scientific research in newly developing areas such as RDF or Radar as it was later to be known, with extraordi-

nary consequences for the result of the hostilities. As the war proceeded, it became apparent that the Germans had lost a major opportunity to involve technically relevant people in the nation's scientific effort. It was a loss, it has been contended, that made a significant impact on the outcome of the War.

In his fascinating book, "Most Secret War", the noted British Scientist, Professor R. V. Jones

tion in 1995 of a new tax associated with spectrum usage is based on a fundamentally changed perception of what the radio amateur service involves as compared with earlier Government attitudes.

One has the impression that now the radio amateur service is seen as not so much a national resource but as an accessible group of dilettante hobbyists, readily susceptible to a new form of tax.

If this is a correct perception of the attitude currently motivating the Agency, this can only be seen as rather ironic given the inclusion of at least one of the objectives of the legislation is to support organisations with a public service function.

In an economically rational time, it is not surprising that the Government should seek to expand the

revenues from what appears to be already a generally profitable area of activity: the use of the radio spectrum.

One should scarcely be surprised at such an attitude, for it has prevailed in Government from the very start of radio in 1895.

However, over the intervening years, the technological resource and value to the public of amateur activity, has generally been recognised through the maintenance of very low fees as compared with commercial operators and as related to the administrative responsibilities of the Government.

It is noteworthy that, as a result of transfer of responsibility for setting and marking of exams to the Wireless Institute of Australia, even the expense of administering that part of the radio frequency spectrum which is inhabited by radio amateurs, has significantly reduced in recent years.

An inspection of the material con-

AMATEUR LICENCE FEES

A letter to the Minister, Mr Michael Lee MP, Minister for Communications and the Arts.

from Michael B. Corbin, President VK2 Division

Since the very earliest days of radio, Amateur operators have been involved in generating some of the most important technical advances in the science of radio communication. However, with the extraordinary advances in technology over the last twenty years in particular, the significance of the individual in promoting new techniques has inevitably diminished, particularly in the face of research carried out by the major industrial organisations, most notably in America and Japan. In that same period, Australia's research efforts in the area of radio communication and development have been severely attenuated. Conversely, during that same period the involvement of amateur radio operators with volunteer citizen emergency response type groups has significantly expanded.

pointed to the disastrous consequences of the German war effort of the decision by Hitler to disband the radio amateur clubs and inhibit radio communications activity in the pre-war period.

The conclusion to be drawn from these events seems clear.

This is that the activities of radio amateurs are far from trivial or to be seen as simply a burden on the public purse. On the contrary, they involve activities with a national strategic significance and represent a resource of major value in time of emergency.

GOVERNMENT OBJECTIVES

It has been asserted by the Spectrum Management Agency that the objective of its review of objectives and the proposed revised licensing fee to radio amateurs that has resulted, is directed at producing a "revenue neutral" result.

However upon close reading it seems quite clear that the introduc-

tained in the Spectrum Management Agency's year book reveals the range of objectives adopted with regard to the radio frequency spectrum.

A significant objective remains that of acknowledging the public benefit of communication endeavours by citizen volunteer organisations and more importantly in providing support of such organisations either by direct subsidy or other less obvious incentive.

In this context it is appropriate to recall that the resource provided by radio amateurs involves technical expertise confirmed by examination and the supply of equipment associated with the communication urge is provided entirely at the expense and volition of the individual.

THE COMPONENTS OF THE LICENCE FEE PROPOSED

When one looks at the process by which the Spectrum Management Agency has reached the current fee level proposed, it is apparent that there are altogether three components.

The first two, roughly speaking, equate with the cost of providing the service that is already given by the Agency.

These two components are firstly involved with regulation and management of the spectrum as used by amateurs and secondly, a component to offset the general cost of running of the Agency.

With regard to these two components, it appears that the costs sought to be offset are in reality already significantly exceeded by revenues obtained from licence fees. As revealed in a study by the Bureau of Transport and Communications Economics prepared in 1990, in the period 1987-88, the predecessor of the Spectrum Management Agency, the Department of Transport and Communication, incurred costs totalling some \$20.4 million and in the same period obtained revenue through licensing of some \$44.2 million.

Scarcely a "revenue neutral" result one would think.

In this context, it appears to us that there is no reason to expect that the trends revealed in the study referred to will be reversed, even given the effluxion of time between 1988 and the present.

This would seem to be particularly the case when one considers the extent to which the devolution of

administrative procedures to the Wireless Institute of Australia must have reduced the costs of operating the SMA in that same period.

As compared with earlier arrangements particularly in the post-Second World War period, what appears to be significantly different and new in the proposed licence fee is the component that has been added, which one could describe quite simply as a tax associated with use of the spectrum.

In this context it is important to draw a distinction between the use of the radio frequency spectrum by commercial operators where profit is the ultimate ambition and that of other users with an entirely non-profit basis.

Such users are the public service groups (the Bushfire Brigade, etc.) and radio amateurs.

The general motivation of this last group could be described as involving intellectual curiosity on the one hand, and an urge to communicate on the other.

It is rather unfortunate that these two issues tend to be coupled together and then dismissed as being merely associated with a hobby. Such motivations, it is contended, remain of vital significance to the national benefit.

In this respect, the imposition of a tax on an activity that is erroneously seen as merely involving a self-serving activity, is clearly undesirable.

There is an inevitable danger in expanding the present level of fees to the extent proposed, that those who are not firmly committed to the experimental or emergency service aspects of the activity or have the financial resources to support their interest, will simply make use of the Citizen Band service which is no longer subject to a licence fee.

In this regard it is considered somewhat ironic that the tax generated by radio amateurs, to be seen as persons with a real public utility in times of emergency, can now be related to the decision to set aside the taxation opportunities generated by an activity which is truly selfish in complexion, the Citizen Band.

Not insignificant in this comparison is the extent of total fees available from the CB service and the capacity for significant growth that taxing this service would achieve given the overall numbers of persons susceptible to such a charge.

The Wireless Institute has become aware that in October 1994, the

Spectrum Management Agency decided to terminate annual licence fees obtained from Citizen Band operators. In this process an annual revenue of nearly \$6.5 million was foregone.

Indeed, given the estimate that perhaps only half of the CB operators are properly licenced, this revenue may well be closer to \$12 million on an annual basis.

By contrast, the proposed doubling of licence fees of radio amateurs will produce approximately 5% of the lost revenue with all the attendant disbenefits to Amateurs ignored.

In this general context, it is considered quite significant that currently the CB service is used extensively by commercial operators for the purpose of profit.

This is to be contrasted with the position of radio amateurs who operate on a non-profit basis.

Further - this situation is enshrined in the regulations controlling their activity. Evidently, on this basis there is no opportunity for cost recovery of any charge or tax associated with the use of the radio frequency spectrum by radio amateurs.

Again, given the public service implications of the radio amateur service, this is seen as being quite inequitable.

PUBLIC BENEFIT

Although it has already been conceded that in recent years there has been a diminution in the extent to which radio amateurs involve themselves in primary research associated with the radio frequency spectrum, nevertheless this does not diminish the quality of the intellectual resource provided by radio amateurs as a group. In this regard, it is significant that specific areas of activity by radio amateurs still constitute important "front lines" to the urge for technical change.

The facility at Dural in New South Wales represents just such a centre associated with communication technology, which could be seen as important to the longer term future of communication in Australia.

Other activities that spring to mind as relevant are the efforts of the Gladesville amateurs who employ broadcast television on a consistent basis for teaching purposes.

In addition, the emergence of computer based message sending as pro-

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AMATEUR LICENCE FEES

A letter to the Minister, Mr Michael Lee MP, Minister for Communications and the Arts.

(continued from page 17)

vided by the Packet system are considered of extreme significance to the long term development of the so-called, "information super-highway".

In relation to the educational thrust adverted to earlier, the involvement of radio amateurs on an annual basis with young people involved in the scouting movement and known as the Jamboree of the Air (JOTA), remains an important means of exposing impressionable young minds to the fascination and excitement of modern communication technology

INTERNATIONAL ASSOCIATIONS

It is essential in any consideration of licensing fees to recall that radio amateurs do not operate in an isolated Australian vacuum.

On the contrary, on the basis of long established international treaty, Amateur activity is confined to limited segments of the radio frequency spectrum which match the allocations for radio amateurs in most countries which permit this form of operation.

On this basis, the concept of "denial of the radio frequency spectrum by other users" is simply irrelevant. By definition and by international agreement, the Radio Amateur bands are unavailable rather than denied in the sense of precluding the derivation of some form of economic rent as can be the case with a commercial or other form of operator.

While clearly the issue that has prompted this submission is specifically Australian in its complexion, it is appropriate to recall that the amateur radio activity is global in its scope.

For this reason, it is also possible to examine the operations of radio amateurs in other parts of the world and compare what they are doing with what is proposed for Australia.

We consider it as entirely relevant to note that in the United States, where similar concerns for cost recovery by government have operated over the years, in the ultimate, radio amateurs in that country no longer are burdened with any form of licence fee. The clear implication of

this situation is that, in the United States, the public benefit available in having a strong resource of technically adept and motivated persons is seen as far outweighing the general cost burden of managing the activities of such a group.

In this context, it is perhaps relevant to note that, in the main, the management responsibilities of the Federal Communications Commission (FCC), have been transferred to the American Radio Relay League in a comparable fashion to the devolution of the responsibility for examinations as it has occurred in Australia.

What does not appear to have been an issue in America is the public benefit of a strong and well supported amateur radio service.

By contrast, In Australia the proposed imposition of the new spectrum user tax on amateurs suggests that the activity is seen as purely self serving and in the same general arena as social golf.

It appears that the Americans take a far more enlightened approach to the benefits of having individuals increase their scientific and technical knowledge by self-help and an examination process, than appears to be the case in Australia currently.

PROPOSAL

As outlined in this submission, it is clear enough that over the years, radio amateurs have provided an extremely important source of trained and motivated persons useful to the needs of the public community in times of emergency and also in time of war.

While it is conceded that technical change has made less pressing some of the advantages of access to such persons as compared perhaps, with the 1940's, nevertheless as demonstrated by recent cataclysmic events such as Cyclone Tracey and the Newcastle earthquake, there remains an important place for individuals to provide independent amateur communication services.

In this respect it is relevant that a substantial number of radio amateurs, numbered in thousands, provide significant communication services to such public organisations as the State Emergency Service and the Bushfire Brigades.

This group is identified by the acronym WICEN, which stands for the Wireless Institute Civil Emergency Network.

The activities of this group were most notably demonstrated in the recent bushfire emergency in New South Wales and their efforts were universally acknowledged after the event.

Beyond that, the significant success of the amateur service communication network as compared with the Government sponsored communication systems, has lead to a radical change of technology in New South Wales in the last six months.

This suggests that the radio amateur remains an important resource in a practical and theoretical sense in much the same way as was the case 40 and 50 years ago.

Examination of the objectives of the SMA coupled with the most recent proposals for increases to licence fees suggests that the salient difference between what is now proposed and what has existed previously, is the imposition of a tax.

This proposed tax assumes that the use of the spectrum is an entirely self-serving activity with effectively no public interest benefit as compared with what appears to have been perceived by legislators.

It is submitted that the Amateur Radio Service continues to provide facilities and an important public resource at its own expense, based upon education obtained in its own time and at its own volition. Such a service should not have imposed upon it a tax the sole purpose of which is raising additional government revenue. This is more particularly the case, given the decision to surrender a revenue approximately ten times that currently available from the radio amateurs in the form of the licensing fees previously obtained from the Citizens Band operators.

Given the American example referred to, we consider that there is a very strong argument to support the proposition that there should be no licence fee imposed upon radio amateurs and the costs of administration should be borne by the public at large.

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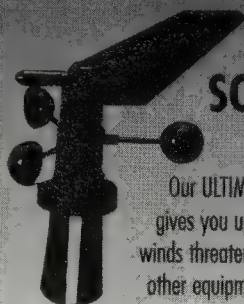
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IC-820H

Australian Defence Force Radio is Australia's newest shortwave broadcaster. Greg Baker went along to the station's Canberra facilities to see it in operation and to get some background to the service.

While the Australian Defence Force Radio (**ADFR**) is Australia's newest shortwave radio station, it is also the first radio station dedicated to Australia's far-flung defence forces.

Even Australia's massive commitment to the Vietnam War did not rate a dedicated radio station, and Australian troops listened to the American Forces Network.

This is the first time that Australia's services have had their own radio services designed to meet their needs and to present an Australian perspective to our troops wherever they are on station.

The impetus for ADFR arose from the need to provide a service to Australia's contingent of peace-keeping troops serving with the United Nations in Somalia.

This follows the precedent set by the Radio Australia (RA) transmission of telephone messages to Australia's ships serving in the Persian Gulf during the Gulf crisis.

With the commitment of troops to Somalia, the government was keen that these troops keep in touch with home via a dedicated radio service. The then Minister for Defence, Science and Personnel, Gordon Bilney, approached the Australian Broadcasting Corporation (ABC) to put out a special short-wave service through RA.

It was at this stage that ADFR first hit the news. Gordon Bilney and the ABC engaged in a public brawl over providing this service to Australia's peace-keeping contingent.

The ABC refused to play ball without the promise of Australian Defence Force funding.

After some political games the service eventually went to air with the ABC providing normal Pacific-bound RA services free of additional charge; the Department of Defence providing and paying for its own segments; and the National Transmission Agency (NTA) providing transmission services out of Cox Peninsula in the

Adam Iffland is the current presenter on Thursday through Sunday.

Introducing the... **AUSTRALIAN DEFENCE FORCE RADIO**

By Greg Baker

Northern Territory free for RA services and at cost for Department of Defence services.

That original ADFR service was on 17.900 MHz in the period from 0300 to 0400z daily. Transmissions continued on the same frequency from 0400 to 0530z with the relay of RA's Pacific-bound English language service.

During that time experiments in providing a solely Defence-based service got under way using Royal Australian Navy (RAN) facilities at the Harold E Holt communication base at Exmouth in Western Australia and the naval radio station at Belconnen in the Australian Capital Territory.

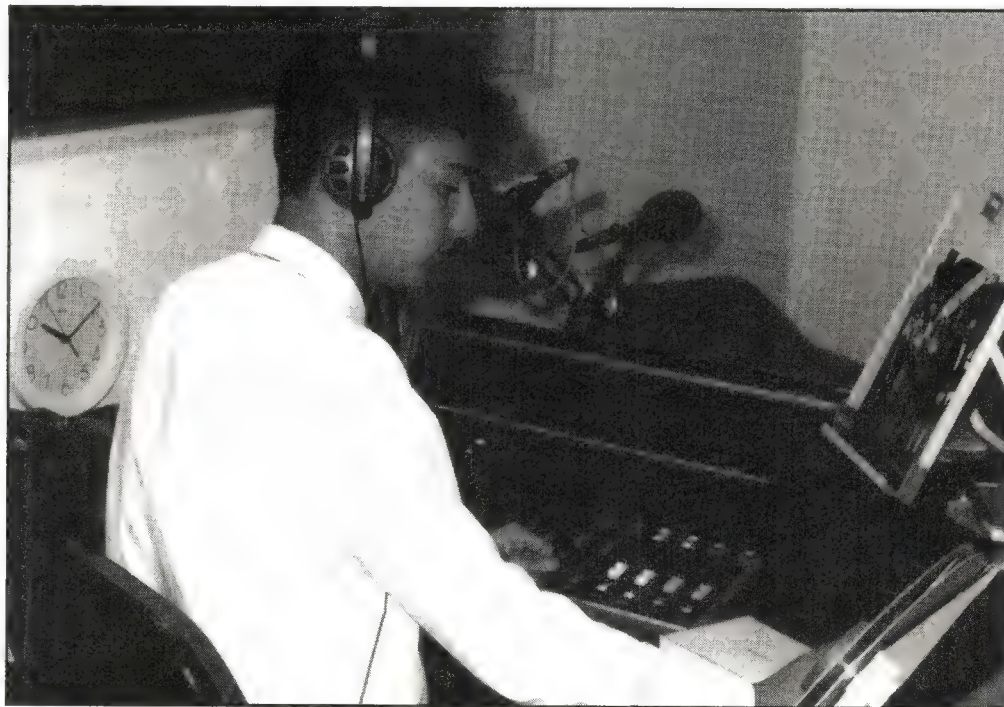
Station manager and presenter Hugh McKenzie spent six weeks in Cambodia during which time he checked propaga-

tion conditions, troop response and the practicalities of reception for Australia's wide-scattered contingent.

These experiments satisfied both Hugh and the Department of Defence Electronic Media Unit (EMU) that a Defence-based ADFR service was viable.

On his return from Cambodia Hugh McKenzie was given a week to have the new service up and running. Temporary facilities for the original Somalia ADFR had been located in the Department of Defence Russell Offices in the ACT. Hugh's job was to get a ADFR studio built in the basement of the Defence Forces Building 1 on Anzac Park West.

... 



Introducing the... AUSTRALIAN DEFENCE FORCE RADIO

(Continued from previous page)

The purpose-built studio was indeed constructed in less than a week (!) taking over part of a larger television studio used by EMU.

It was an impressive effort and the current studio boasts a rack of CDs, McCubbin panel, Harman/Kardon CD players, Sony Mini Disks and Tascam reel-to-reel tape decks. Now that the ADFR team has settled in and has a stabilised program format it is continuing with studio improvements.

EMU

EMU is headed by Lisa Keen under the direction of the Director General of Public Information, Brigadier Adrian D'Hage. EMU's brief is to provide media support in two principal areas, broadcast video for the networks and still photography for publications. Australian Defence Force Radio fell naturally into the former area.

ADFR is staffed by presenters Hugh McKenzie and Adam Iffland. In fact, the whole of EMU — comprising Lisa Keen as director, Warrant Officer Barry Buckley who is chief photographer, Staff Sergeant Di Chalmers who is OIC stills photographic and Simeon Rahman who is video editor — contribute to the day-to-day running of the station.

Hugh's responsibilities as station manager include administration, purchases, maintenance (including work with the soldering iron!) and putting together his share of the programs as presenter. To Hugh, ADFR is a 24-hour-a-day job. He likes to be at the station and is always thinking of ways to improve the station, its facilities and its services. Hugh says that the team has received enormous support from Defence personnel, many of whom believe that the service has been a long time coming and are glad it has finally arrived.

Hugh started his broadcasting career in commercial radio. He then spent 13 years with the ABC, finishing his time there with the training of Aboriginal and Torres Strait islander radio presenters at the indigenous broadcast unit Jarrakjarrak.

Hugh says that he left the ABC for the challenge of a new organisation and a new radio station. He says that he enjoys the intimacy of working in a small unit with a common goal.

According to Hugh, the ability to communicate via radio is not something that can be easily taught. He says that when he is on-air he turns off from all around him and turns inward with the focus of his concentration, the microphone, as the ear of his best friend.

This gives the audience a feeling of being one-to-one with Hugh, even though he is not thinking of anyone in particular.

Hugh says he concentrates on building a bridge to the audience so that service people feel he is talking just to them. And, unlike many presenters, Hugh is not quick to fill silences. To him the pauses are an important part of the intimacy of the medium.

In addition, Hugh says that it is necessary to pace speech on-air a little slower than normal speech to allow for the propagation problems inherent with the shortwave medium.

With its new purpose-built facilities, ADFR broadcasts three sessions per day. To get the ADFR story I rang and made an appointment to sit in on a session. Talking to people at the station was remarkably easy and so too was negotiating security at the Anzac Park West offices of the Department of Defence in the ACT. I fronted there one rainy day, camera and notebook at the ready. Hugh McKenzie signed me and my camera through and led the way to the basement offices and studio of the EMU.

The first daily broadcast goes out live and it was one of these broadcasts that I sat in on during my visit. Hugh's years in radio became evident as he read news headlines, introduced music tracks and chatted with the then sports commentator Toni McNeill.

PROGRAM CONTENT

Typical ADFR broadcasts are a mix of contemporary music, news, sports results and messages to Australia's men and women in the field.

The music is chosen from a library of CDs, many provided free by Australia's record industry. Despite the modest size of the station's CD library, there are still sufficient tracks available to provide a wide range of good contemporary music and to need the services of a computer catalogue to locate tracks and artists. Music is aimed at the 18 to 35 year age

group, in keeping with the age range of the troops.

Australian content is in line with Australasian Performing Rights Association (APRA) rules, giving at least 20 per cent Australian content and five per cent music of Australian composition.

As presenter of three of the seven weekly broadcasts, Hugh keeps abreast of contemporary music and selects the material for his own sessions. He aims not only to present music which appeals to our troops, but also to ensure that they remain abreast of what is happening in the music world while they are away and to hear what their contemporaries who have remained at home are hearing. And Hugh McKenzie knows his contemporary music and performers. This knowledge certainly pays off in his ability to ad lib the introduction to music tracks on air.

At the moment the station is unable to accept music requests. As Hugh says, the CD library is not yet of sufficient size to be able to throw the choice of music open to listeners. However, as the library grows Hugh believes that this service will become possible and may be gradually introduced.

News headlines are presented at the beginning of the program and a news summary concludes the broadcast. The main news bulletin is presented on the half hour. Although important national news is covered, there is again an emphasis on state news so that Defence Force personnel remain abreast of what is happening at home in their absence.

Hugh McKenzie is full of praise for AAP. He says that the AAP service takes all of the pain out of news preparation and adds that AAP was of great help in setting up the original Somalia service, helping in more ways than a strict reading of their agreement would indicate.

Sports news and results follow the main news bulletin. Sports news again concentrates on state fixtures and other sports news. The aim is to keep our personnel overseas up to date with what is happening in their state competitions.

During my visit a great on-air rapport between Toni and Hugh was evident. The flavor and humor of local sports competitions came through their good-natured banter and made me nostalgic for home just listening to them! (Tom McNeil has left ADFR since I was there)

The other important part of the program is the use of taped messages for service people in the field. Messages are collected from a special 008 toll-free telephone number and Hugh is keen for the service to be more widely used by

families and friends of Defence Force personnel.

The number (008 818 920) is connected to an answering machine which is cleared daily. Importantly, messages are not edited but broadcast exactly as they come from the answering machine tape.

TRANSMISSION AND REBROADCASTS

The daily live broadcast signal goes from the Anzac Park West ADFR studios via standard Telecom broadcast-quality line to the RAN communications facilities at HMAS Harman in the ACT. This live broadcast is simultaneously run onto a DAT (digital audio tape) at the ADFR studios and taken the few kilometres to HMAS Harman for later retransmission for the other two broadcasts during the day.

From HMAS Harman the signals are transmitted via microwave bearer to the NAVCOMMSTA facilities at Belconnen in the ACT where a 40 kW transmitter pushes the signal into a steerable rhombic antenna system. This antenna system was originally designed for the great circle path to the United Kingdom but can also be used for signals which lies along this path.

The Western Sahara and Red Sea signal is sent again by standard Telecom line to the Naval Communications Facility (NAVCOMMS-TA Harold E Holt) at Exmouth in Western Australia. Here a 10 kW transmitter is used to feed a steerable log periodic antenna.

The daily ADFR schedule is 13.525MHz at 0100z, 0430z and 1000z and 15.607 or 18.193 or 10.623MHz at 0800z and 1400z. Frequencies may vary depending on conditions but will be close to those above.

RECEPTION IN THE FIELD

Currently the station targets the Red Sea, Pakistan, Western Sahara, Iraq, Israel and Egypt. Australian personnel serving with other Australian agencies overseas — for example the Australian Federal Police contingent on Cyprus — have also been notified of the availability of the service.

In the field, Australia's troops pick up the transmission on their Raven military transceivers and via standard high-quality shortwave broadcast receivers while in camp.

For ships at sea, the ship's radio office picks up the signal and pipes it throughout the ship as part of their normal radio and CCTV programming.

The station received an excellent response from Australia's 500 troops in Cambodia.



ADFR EXPANSION PLANS

From these sound beginnings there is the possibility of the expansion of the service from the current 120 minutes three times a day.

Hugh notes that at the moment some broadcasts contain as many as 70 messages to troops from family and friends. Although these messages are a vital component of ADFR programs, broadcasts with many messages allow little time for music.

This means there is sufficient material to extend the service and a longer service would allow more time for sport and messages as well.

Hugh adds that the RAN is able to provide the necessary transmission facilities.

However, the station wants to ensure the continuing viability of a longer program before making the additional commitment.

RECEPTION REPORTS

Hugh McKenzie says that the station welcomes reception reports because ADFR is keen to receive reports to test

Hugh McKenzie is the ADFR presenter Monday through Wednesday - and in case this isn't enough, he is also the station manager - and a dab hand with a soldering iron.

propagation conditions, particularly in the equatorial monsoon season. Reports are also valuable to ADFR in determining adjacent channel interference and monitoring the occasional wanderings of commercial broadcasters into Australian military channels.

Currently the station does not require IRCs nor payment for reception reports.

Not only is the report information useful but the station is happy to help people with the hobby of DXing and, like many similar organisations, does not have mechanisms in place to accept such payments.

All reports are verified if correct and IRCs and other payments are returned with verification reports.

QSL address is to the Electronic Media Unit, Department of Defence, Anzac Park West 1-B-07, Reid, ACT 2601.

John Day, VK3ZJF, with some...

PACKET PROBLEMS or what's going wrong?

**I was wrong, and I'm depressed!
Or was I right? Whichever way I
am still depressed!**

It was only a few years ago that packeteers from all around Australia gathered in Canberra with the hope that they would lay the groundwork for a nation-wide packet system which would serve the needs of packet operators for years to come. In fact, it was four years ago, on April 6, 1991, that I had the following to say in Canberra:

"Whilst many packet amateurs seem to be very happy with 1200 bps operation and the BBS systems as we know them today, that is not what this seminar should be about. We must obviously keep those users firmly in our minds and provide for them when we make changes and hopefully improvements to the system, but we must never allow ourselves to believe, as some would have us do, that our packet network can rise no higher than the lowest common denominator.

"To limit ourselves in such a way would be to neglect the very foundation of amateur radio itself, and would naturally be the best form of suicide that amateur packet radio could commit."

Well, what has happened to the hope we arrived in Canberra with four years ago next month? It seems to have gone!

As some of you may have realised, my packet world in the last year or so has been rather restricted. I generally operate on one or two channels and that's about all. I do some testing during the day and a bit of observing of an evening.

Over the latter part of 1994 I felt that things in the packet world seemed to be going a little wrong here in Melbourne, and that is largely what I can speak of, because I have little direct experience of packet elsewhere. I sensed that I was seeing less and less throughput on the frequencies I monitor. So I wrote a little Visual Basic program which I called 'SNOOP'.

SNOOP performs a very simple job. It takes the output of a TNC running in KISS mode and scans each packet to determine what it is. Each frame can be considered to belong to one of the following classes:

- **Procedural** (connect and disconnect requests)
- **Information** (frames containing actual data)
- **Overhead** (retries, routing broadcasts and so on)

SNOOP makes a couple of basic assumptions. If a data frame has been sent once and is received again it is considered to be overhead, not data, and it assumes that any network-related traffic which appears on an end-user frequency (such as NETROM broadcasts and supervisory activity) is considered to be pure overhead.

Now, for a few results of some

"I contend that experimentation in the packet community has been stifled by the 'haves', who have taken control of the system and reduced it to the lowest possible common denominator, aided by a bureaucratic establishment which seems to have little knowledge of the technology involved, and even less interest in learning about it."

monitoring:

1... On most channels the actual throughput, when compared to the theoretically ideal channel, is about seven per cent of the maximum possible.

2... On most channels, the level of retries, due largely to 'hidden transmitters', is around 50 per cent (in other words, 50 per cent of the actual traffic is a repeat of something already sent).

3... Network-related overhead, due mainly to the inappropriate use of products such as NET/ROM and NOS, can occupy as much as 26 per cent of the channel capacity.

4... Too many users 'graze' through a multitude of BBSs looking at bulletins — without realising that every BBS in town eventually gets exactly the same bulletins.

5... Some people are actually trying to convince themselves that they can share a single channel between 1200bps and 9600bps. This craziness means that neither gets more than about a 20 per cent shot at a clear channel. Ah, I'm getting a headache...

Now *this* is where I really got depressed:

Most of the guidelines for the smooth operation of a packet system are being broken in such a way, in Melbourne at least, that the system is virtually paralysed.

Even the 9600bps backbone systems intended to interconnect the BBSs is crippled with retries because of an inappropriate application strategy of otherwise useful and competent equipment.

No wonder new users are discouraged when they find they are unable to access BBS systems during normal waking hours due to the horrendous inefficiencies the system is plagued with!

When I look back over the years I have been involved in packet radio I realise that part of the problem I perceive today is nothing more than a problem society as a whole is plagued with. We have two 'camps' within the packet community — the 'haves' and the 'have nots'.

The 'haves' have control over the infrastructure of our packet network, the licenses for the repeaters and BBS systems, as well as the ear of packet infrastructure operators around the world who are a necessary part of transacting the day-to-day business of a packet system. In short, the 'haves' have *power*.

The 'have nots', on the other hand, do *not* have these things. No matter how much they may want to contribute to the operation of the system by establishing alternative networks, they find the 'haves' have control of things because they have allocated all the channels to their own network!

So today, in 1995, we have a community where the packet users are seeing a system which differs little

from that which they saw four or five years ago. We have, in fact, a *lower* level of service than we had then, and I see little hope of things changing unless the 'haves' decide it is time to involve the 'have nots'.

Our present packet system is choking itself to death. We need to do something to relieve the sickness which is eating away at our ability to enjoy our hobby.

Bureaucracy rules!

One of our greatest problems at the present seems to revolve around bureaucracy. No, not the SMA and government bureaucracy, but the organisations we have established for ourselves which have ultimately taken on a life of their own — a life which seems to have little to do with what we wish to achieve.

It would seem that in most states one packet radio group has often taken upon itself the role of coordinator of the entire packet system. Sadly, in most cases it seems that even the state branches of the Wireless Institute have little — or no — involvement in this activity at all.

Organisations with small memberships which are not at all representative of the packet community as a whole have taken into their own hands the responsibility and privilege of planning our packet network.

If you apply to the SMA for a licence to operate a remotely-located packet facility under an 'R' (repeater) class licence you will generally be directed that the licence can only be issued in the name of a group or club, not an individual, and that it must be subjected to the planning and coordination of your state TAC (Technical Advisory Committee). In several states we are faced with the situation where the TACs are not interested in packet radio, so they have devolved their planning role to the major packet group in the state.

Usually this is the very same group which is *not* offering the facility we need.

What a ridiculous situation!

The umpire belongs to the opposition team, and when you point this out to the SMA it just shrugs its corporate shoulders and points out that the manner in which the TACs work is entirely up to the TACs!

Thus, apart from all of the other services we used to enjoy from our local WIA branch, we find that the planning

role has been given away as well...

Surely one of the first moves *must* be to try to remove players in the field from positions of regulatory and planning control. How else can we ensure that the whole diversity of opinion is heard and that planning and regulation will consider the whole diversity of requirements?

At about this point in planning this piece I really started to get depressed. Packet channels in this country have become more and more crowded, and little or no thought has been given to increasing the capacity of end-user access channels, despite the dramatic advances in radios and TNCs over the last year or so.

Most interstate links still seem to be on inefficient HF links or slow 1200bps links which often appear to have very limited capacity. Access to wormholes still seems to be very limited and unreliable, despite the advances made in Internet access and technology for the masses in recent times.

Amateur radio is, as we were told by Chris Edmondson, VK3CE, when interviewed on the ABC's *Media Report* on Radio National on Australia Day, "an experimental hobby". A hobby which we are supposed to use for the advancement of ourselves and our knowledge.

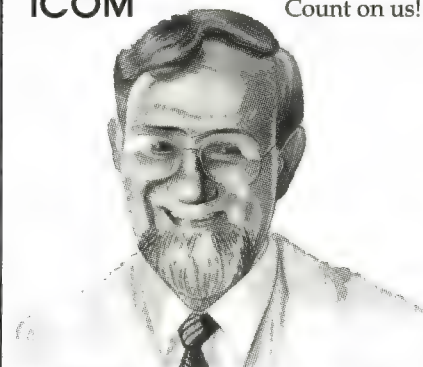
I contend that experimentation in the packet community has been stifled by the 'haves', who have taken control of the system and reduced it to the lowest possible common denominator, aided by a bureaucratic establishment which seems to have little knowledge of the technology involved, and even less interest in learning about it.

Unless something happens very soon to break open the packet system in this country, we will see more and more amateurs taking their activities to the Internet where already a number of informal SMTP servers provide amateur e-mail access with far greater speed and efficiency than our present packet network with none of the political hassles along the way. The Internet today offers high-speed access, easy use, lots of interactive chatting and a plethora of other things which the packet technowizards told us would be ours very soon — and *that* was in 1985!

These things might be available to amateurs in Japan and the USA, but here in VK we just seem to wait, and wait, and wait...

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"VK3LZ calling!"

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When 1200 baud AX.25 packet radio first became popular with VHFers in this country everyone thought all their Christmases had come at once. And indeed they had for a while... but nobody thought to keep this wonder a secret, did they, and the inevitable result was channels jammed as badly as Pitt Street on the Friday night before Christmas.

Few things can be more frustrating than sitting in front of your blank computer screen waiting for that reply to come back.

The jammed channel syndrome, you see.

And sending a big file to a friend, even on a clear channel, is a cut lunch job at the common but pedestrian 1200 baud.

Okay, you've got the message. 1200 baud VHF or UHF packet radio can be fun all right, but the fun is quickly overtaken by the frustrations, leaving you feeling a bit frayed around the edges.

Several years ago, a number of commercial packet TNC manufacturers introduced 2400 baud 'turbo' TNCs to their ranges, but the user base was slow to move to this doubling in speed, mainly because being only half as slow as 1200 baud was still crawling when all was said and done. To be blunt, the 2400 option didn't ever really take off.

A very few people have used 4800 baud packet radio. Now this *is* actually quite a worthwhile improvement over 1200 bauds. It is, of course, four times as fast, which should in theory mean you'll get four times as much data access in a full duplex contact.

But normal semi-duplex or simplex contacts slow things dramatically, with data fields still limited to 255 pieces of data and the complex "...did you hear all of that okay?..." "...hang on while I count it up, mate ... yep, that's fine..." routine for the TNCs to go through, and moving from receive to transmit can only ever be so fast.

The manufacturers stayed away from 4800 in droves, mainly because the telephone modem brigade was heading *en masse* at that stage to 9600 bauds, which meant this much faster-again technology would shortly be very cheap to buy.

Anyway, what's good for the goose...

But until now, if you wanted a path to 9600 bauds you bought a second TNC

AEA PK-96

...a 9600 baud packet radio controller

By Chris Edmondson, VK3CE

or hung extra bits from your 1200 baud unit. I don't think there are many people operating at 9600 bauds who wouldn't have a piece of gear for 1200 baud.

So it is a great move for the main companies to introduce TNCs which have both 1200 baud and 9600 baud modems built in.

While they're quite a bit more expensive than 1200 baud gear alone, they're not much more than the cost of entry-level 9600 baud gear.

And now we have an even better reason to consider 9600 baud for mainstream packet use: commercially-manufactured amateur transceivers specifically designed to handle 9600 baud operation.

It couldn't be easier.

You buy a particular two metre or dual-band two metre/70cm mobile rig and use it in the shack with the TNC plugged into the special port on the radio.

Some of the latest monoband radios with specific 9600 baud connectors are Icom's IC-281H and IC-481H, Kenwood's TM-251A and Standard's C1208D.

Amongst the dual-banders with this facility are Icom's IC-2700H, Kenwood's TM-733A and Standard's C5718D. All of these late-model radios have special 9600 baud TNC connectors, with receiver circuitry optimised for the sharp response needed at 9600 baud and very fast tx/rx switching.

We've tested a number of them in these pages in the last few months.

Go back a couple of years and a 9600 baud TNC would have cost you a lot of money.

The satellite gang was the primary target for such things as the interesting G3RUH device, but not a great number of them saw the light of day in terrestrial service.

These days, thanks in main to the expanding telephone modem market, a 9600 baud packet TNC is not as dear as

it might have been, and many of them offer 1200 baud operation as well.

The occasion here was the arrival of AEA's new PK-96 from importer Emtronics in Sydney, and we decided the time was at hand to grab one of these devices to see what it could do.

Of course, we also needed a radio set up for 9600 baud operation, and as the reviewer's equipment isn't 9600-friendly, we borrowed one of Icom's excellent new IC-820H dual-band base station transceivers for the test.

The TNC described

The AEA PK-96 is a compact, dual-purpose TNC intended for use at either 9600 or 1200 baud, which means you could buy this unit and no other for all your VHF/UHF packet work.

It is a single-port controller, which means it operates at one baud rate and with one radio at a time. (One opposition 1200/9600 baud unit is capable of using both ports at once, and you can 'cross-connect' from one port to another. We'll be looking at this unit in a future issue).

Mechanically, the PK-96 measures 155 X 190 X 33 (w,h,d, mm), and its case is all metal, painted in a somewhat lighter version of battleship grey.

Access to the internals of the PK-96 takes time as it requires not only the removal of the case screws, but also the locking posts from the 'D' connector on the rear of the unit and the retaining nut for the 3.5mm socket used for speaker audio input.

However, once these have been removed, access to the internal workings is easy and the product shows its heritage of AEA's usual very high standard of construction and circuit design.

The PK-96 is entirely made in the USA, by the way.

Some so-called US equipment is actually made in Taiwan, shipped to the USA, then sent most of the way back to come here!

The front panel of the PK-96 follows a

familiar theme first seen with the PK-87 and PK-88, with five LEDs to indicate the various functions and one for power, along with the power switch itself. Located on the rear panel are a conventional coaxial DC connector, a 25-pin 'D' connector for RS-232 signals to your computer

The firmware

AEA uses firmware of its own development which, although very similar to other TNCs, does have its subtle differences.

However, anyone familiar with another brand of TNC will soon find the right

given over the course of several fold-out pages, but no explanation of the design or internal operation is attempted.

There's no computer software, either proprietary or shareware, supplied with the PK-96, but AEA has included a great deal of radio modification information in the manual, and Emtronics does sell some good AEA software which we guess you'd want to collect at the time you buy the unit. When using a PC for packet I generally go for Tony Lonsdale's excellent paKet program, which is now (deservedly) seeing service around the world.

The PK-96 on the air

For 1200 baud use, the connections for the PK-96 are the same as used by MFJ and DRSI

or terminal, two trim-pots for setting the 1200 and 9600 baud transmit signal levels, a 3.5mm connector for receiver audio input, a 5-pin DIN connector for connection to the radio and a small push-button to reset the controller.

The design

For the PK-96 AEA has used a design fundamentally based on its very successful PK-232 'Pakratt', PK-88 and the most recent PK-900 controllers.

This time there's a Zilog Z180 CPU, and the unit we were supplied with had 128K RAM fitted which allowed a 100K mailbox.

(The standard configuration gives you 18Ks.)

A TCM3105 modem chip is used for 1200 baud operation with a standard DCD state machine.

The 9600 baud modem is unique to this particular TNC, as it uses a handful of CMOS ICs and a filter to perform the function usually performed by a VLSI modem chip in other designs.

The effect of this choice will be dealt with later.

The PK-96 is provided with a modem disconnect header, but its location would suggest that AEA hopes you won't ever want to use it!

This gadget is usually used to connect an external modem — traditionally a 9600 baud unit piggy-backed to a 1200 baud controller, which is clearly not needed here.

commands for the job, and if this is your first TNC, there's obviously going to be no problem at all.

Terminal baud rate selection is fully automatic, and the radio baud rate and modem selection is made using the HBAUD command.

A node function, similar to the established KA-node introduced some years ago, is included in the PK-96 firmware. Some will find this 'node mode' quite engaging...

The manual

In common with other AEA manuals, the PK-96 document is complete, basically easy to follow and very well produced indeed.

Its pages are large (around the same size as this magazine), well printed and presented in a sturdy plastic three-ring binder. Complete schematic data is

TNCs, which is a very good move for those who may have bought an earlier unit.

Sadly, AEA do not provide the same jumper arrangement for keying hand-held transceivers as MFJ, DRSI and Kantronics do, which means you'll need to play with resistors and capacitors in the radio's transmit cable if you plan to go to air with an HT.

As so many users do just that (use HTs on packet), that's a little black mark for the AEA.

To be complete in our tests, we tried both a modified two metre HT and a dual-band Icom IC-820H 9600 baud-ready base rig for this test, so this meant we had to modify the cable each time we switched rigs.

Having fished around in the box and

....



added the appropriate components externally, the PK-96 came up on 1200 baud easily and performed well on the local BBS system using my favorite hand-held.

When using 9600 baud the PK-96 uses the same connections as MFJ and DRSI and so I was able to use an existing set of cables for the high speed testing without having to reach for the supplied cable.

With the IC-820H the PK-96 went into service easily and operated well in a test set-up across the room and with the local network 9600 baud access port.

9600 design...

I noted earlier that this unit uses a modem design which is quite different to that generally used in other 9600 baud products, with CMOS ICs and a filter instead of a VLSI modem chip.

This means that many of its modem functions are generated in a different way.

Although this will have resulted in some clear manufacturing cost savings (which presumably get passed on to the customers) it also, unfortunately, leads to less-precise performance.

We hooked the unit to a spectrum analyser, in order that we might more closely examine the PK-96's audio output.

We expected to see the energy in the audio falling off rapidly after about 1.5 times the data rate. In the case of the PK-96 the energy is considerably higher — out to beyond 50kHz. This situation causes the bandwidth occupied by the PK-96 transmission to be wider than other signals.

AEA has also used a different design

in the controller's receive section, and this may lead to some compatibility problems with signals from other brands of equipment.

By not making any provision for equalising the incoming signal, nor for setting the threshold of the 'data slicer' in the receive side of the modem, the PK-96 lacks to some extent a degree of flexibility and adjustability.

One final, less important omission is its lack of an internal loopback mechanism, which is present on most other TNCs we've looked at in recent times.

Loopback, a connection between the transmit and receive sections of the unit, is helpful for setting things up and also for troubleshooting a system.

To implement a loopback in the PK-96 requires an external jumper.

Summary

On the whole the AEA PK-96 is a pleasant entry-level dual-speed TNC.

By offering both 1200 and 9600 baud operation, it gives the first-time buyer the opportunity to find out how things work at 1200 baud — which *everyone* has — then proceed later to the far more complex and specialised 9600 baud operation. It went together easily and worked as per the excellent manual.

However, we encountered a couple of negatives not expected from an outfit like AEA.

To start with, while the power consumption of our unit was well below specification limits (400mA) at 240mA, even this is *much* higher than any other comparable unit on the market today and is, in my opinion, too high for a modern design.

Also, while the 100K mailbox works

well, it is rather limited in size if you want to use your PK-96 as a mini-PBBS. After all, 100K fills awfully fast at 9600!

But you can live with those limitations.

In the very early stages of testing, though, we found a more important oversight, and this single fact may limit the PK-96's impact on the high-end user market: according to the manual, the terminal baud rate (the communications rate between the computer and the TNC) can only be set as high as 9600 baud.

This is surprising, as it is essential to use *at least* 19,200 baud terminal rate for efficient use of 9600 baud packet systems.

Lower than 19,200 means the to-air buffer will sit empty some of the time, waiting for data to come in from the computer.

Obviously, this means that you don't make the most effective use of the spectrum.

To summarise, then, the AEA PK-96 is a stable and competent entry to the market despite the niggles we've just discussed, and it should generally be a good choice.

It was fully compatible with the de-facto standard 9600 baud modem, the G3RUH design used by many present 9600 baud operators, and can be used in the amateur satellite service.

Overall, the PK-96 should give you many years faithful service.

Amateur Radio Action thanks Emtronics in Sydney for the loan of the review TNC. Kevin Cavanagh, VK4SP, is also an official distributor of AEA equipment.

EQUIPMENT EVALUATION.....

Ever since I took up amateur radio in 1980, I have been reading about the ongoing bunfight for and against CW...

"Unnecessary!" cry the detractors. "A must!" cry the protectors. "An anachronism!" thunder the would-bes. "A proud tradition!" counter the die-hards. "Nobody but *nobody* uses Morse Code any more!" declare those who would not recognise a Morse sound even if it was hard-wired into their ear-holes. "Morse gets through where everything else fails!" remonstrate those who never use SSB.

And so the argument goes on. CW could give you brain tumors! CW keeps your brain active! CW is a barrier! CW is not a barrier! CW is elitist! CW is for everyone! The young don't like it!

Ah, the young ones! Unless they have a rich daddy, a simple CW rig may be all they can afford, but they make good bargaining chips for both sides. On the one hand, if we are to attract the youngsters, CW must be dropped — or, on the other hand, youngsters like the idea of communicating in code, even at only five words per minute.

The argument that five words per minute is useless may be a valid one but, then again, the enthusiast will want to improve his or her speed. The luke-warm ones will drop out and that is something which must be seen as a loss to the amateur radio community.

So, maybe CW is not only a barrier but also a *filter*, but it's a filter which may be too fine in certain situations. For instance, to someone who is only interested in amateur radio as a cheap way to get a computer and a modem hooked into the various bulletin boards and what-nots with no thought of traditions or amateur radio's reason for being. It must be agreed that CW here is unwarranted and unnecessary — as it appears to be most of the time on the SSB sections of the bands.

Because, as much as we don't like to admit it, we may as well face facts. Many a fully-licenced amateur today would be hard put to give someone a CW QSO if requested. But that does not prevent him or her from enjoying the hobby to the full. At some stage they have all passed the dreaded Morse test and proved to them-

selves and the world that they could do it. They therefore have no reason to feel left out in any way. But, at the same time, there is a growing number of outsiders who demand to be let in with a minimum of hassle. And hassle number one is CW. No multiple choice here. You either know it or you don't.

To counter this situation there is strong lobbying in high places going on. A group in the USA presented a petition to the FCC last year requesting exemption from CW for any aspiring radio amateur aged over 65. It could have been a start, but the petition has so far been turned down after consultation with ARRL, as it was felt that age alone was not a valid reason for exemption. But the noise against this mode as a requisite for an amateur radio licence is growing. We may well see the day when the CW barriers come tumbling down like the walls of Jericho, with masses of new amateurs joining the ranks.

"And so the argument goes on. CW could give you brain tumors! CW keeps your brain active! CW is a barrier! CW is not a barrier! CW is elitist! CW is for everyone! The young don't like it!"

The first countries to wave goodbye to CW will, of course, also be waving goodbye to any thoughts of reciprocal licencing, as the new standards will not measure up to those of the more conservative countries. (Although amateurs of the 'old school' could possibly get dispensation, having their licences suitably endorsed with 'Morse proficiency' or words to that effect.)

But what happens when every country has finally jumped on the no-code wagon?

Could it be that while the SSB band sections become cluttered with machine noise, more and more of the 'old school' will be driven underground to the CW sections where so far only they can communicate, conducting cosy QSOs which the masses are unable to monitor? No, we are really talking about an elite. Forget about computer Morse. It is practically useless at picking out weak signals from a pile-up or reading a shaky fist.

Many of the "I don't have a key connected at present" brigade will smarten up on their CW and join the fun underground. And, being an elite and a minority, we will all become even more closely knit and chummy than we are at

present. Of course, there will be nothing to stop us popping up on SSB as well if we feel like it. We will be the genuine all-rounders, equally at ease above or below ground.

But how long were Adam and Eve allowed to remain in the Garden of Eden? That nasty snake named jealousy is sure to raise its ugly head before long, starting a new fight against the battered old Morse Code.

And now the arguments will carry some weight. Elitism! An anathema to the proletariat who, in any case, believe that only money should be the divider between privilege and no privilege.

Useless waste of band space in this age of high technology. Only a tiny fraction of the new breed of amateurs know Morse Code!

Some young ones don't want to learn! And, of course, it may give you cancer! In time CW could be banned completely...

Those few MHz at the low end of the bands would be required for more machines — and amateur radio as we know it would grind to a halt.

Why? Because the new breed will have little or no interest in home-brewing. Try to home-brew an all-singing all-dancing computer complete with modem, based on the knowledge gleaned from the new amateur radio study course. (Anything more technical than plugging into a wall socket will have been dropped as unnecessary and too hard for the 'youngsters'.)

There will be no interest in propagation.

After all, satellites take care of that. Even experiments with antennas could disappear along with any knowledge of the ionosphere.

But wheels have a way of turning full circle. This particular wheel may take a while to do so, but in the end it will. A small group of people who have rediscovered the ionosphere will begin to stake their claim.

"Away with computers and machines from the amateur radio bands! The bands should be kept for experimenting and communicating, using simple means! In the old days people were even able to communicate using very simple equipment and something called Morse Code..."

The young ones demand to learn! We need something to set traditional standards. Morse Code should be made compulsory for gaining amateur radio privileges!

Surprise, surprise! Maybe we just need to have something to argue about. It keeps us mentally agile.

WHY NOT TRY A NEW COMMUNICATION MODE - OR TWO?

Last month we asked the question "What do you when the sunspots go away?". And one of the conclusions we reached was that if your favorite HF band is not playing the game and insists on presenting you with little more than endless static, you could always investigate a new communication mode or two.

It's *à la mode* this month in Here and There, as we take a quick spin through some of the more exotic modes available to you, the enterprising, experimenting amateur.

As well as following on from this idea, some further thoughts on the topic for this month's Here and There were stimulated by the arrival here of a multi-mode box from the ubiquitous MFJ. Editor Len had sent this box over for review for ARA's sister publication, CB Action.

Poking through the accompanying documentation, it became clear that there are quite a few ways of getting a message across other than just talking to someone.

This particular box of tricks, the **MFJ-1214 PC**, handles facsimile (FAX), radioteletype (RTTY), ASCII and Morse (CW). Others which have crossed our path over the years (such as the AEA PK-232) can, in addition, handle packet, AMTOR, slow-scan television (SSTV), PacTOR and others.

And, for perhaps the ultimate in modes offered, how about this one from Universal, as advertised in last month's ARA by Emtronics — the **M-8000v5**, which boasts Morse, Baudot, bit-inverted Baudot, variable Baudot, ASCII, Packet, PacTOR, SITOR A, SITOR B, ARQ 2 & 4 (TDM), ARQ-E, ARQ-E3, ARQ 6-90, FEC-A, ARQ-S, SWED-ARQ, VFT (FDM), Piccolo, POSSAG, Golay, ASARS, and FAX!!

For good measure, it also writes Russian Cyrillic characters and does a whole heap of other things which require the instructions to

understand...

So clearly there are plenty of modes of communication to choose from, and just when you thought you had mastered them all, along come some more!

Each has its own set of rules, protocols, tone frequencies, and the like, some of which we'll have a look at now. Here and There cannot claim to have experienced all the amateur modes, never mind understand them!

But this might get a few of you to put pen to paper and tell us what you know about your favorite mode.

By the way, did you know that the word 'amateur' is derived from the Latin for 'love'?

So an amateur is a person who is so fond of a pursuit or pastime that he or she follows it just for the love of it (instead of getting paid, I suppose)!

Try telling *that* to some of our more politically-inclined fellow amateur radio enthusiasts. Oh, well, on we go...

Digital or analogue?

Some amateur radio communication modes are digital, while others are analogue, so it is important at the outset to distinguish between the two.

Electronic boxes such as those in the MFJ, Kantronics, PacComm, DRSI and AEA (amongst others) stables mostly employ digital modes, in which information is carried from place to place as a succession of 1s and 0s or **Binary digITs (bits)**.

These are the very same building blocks employed in computers to create binary words, to conduct mega-calculations, and to build images before our very eyes. Information — text, black and white, grey-scale or color pictures — is coded as a series of binary digits, transmitted by radio or cable, then decoded

back to its original form.

The conversions from text or multiple levels of brightness and color are generally carried out by some form of computer interface.

In integrated boxes like the multi-mode TNCs, the same interface then converts the digitised signal into audible tones which can be transmitted in the same way as speech.

Conversely, the computer itself may do all the hard work and simply send the final result out of the serial port.

Now let's have a run through some of the modes available, noting their particular features and whether they fall into the digital or analogue class.

For reference, we've used the ARRL Handbook and the manuals which came with some multi-mode boxes, namely the AEA PK-232 and the MFJ-1214 PC.

Morse Code

First a quote from the AEA manual about Morse — not everyone will agree, of course:

"Morse Code is still the foundation of amateur radio operation. Morse contacts are greatly improved by computer-based operation. Messages which used to be handled manually can now be sent at much higher speeds, with greater ease of operation. Computer-based Morse automatically creates and maintains a permanent record of your Morse communications, a major advantage over manual operation."

Well, that's one person's opinion!

Try telling *that* to dedicated Morse fans. But we're not here to get embroiled in an argument for or against Morse, so let's stick to the technical aspects.

My personal experience with machine-generated and decoded Morse is much more in line with the next paragraph from AEA:

"There are some differences between manual and automatic Morse. As a rule, computer-based Morse needs stronger signals to achieve the lowest number of errors when automatically decoding received text.

"Computers are not forgiving or tolerant of a 'bad fist'. Trying to decode poorly-sent Morse Code with any computer system is like the GIGO rule: Garbage In, Garbage Out! Even the best computers will send garbled characters to the screen or printer when trying to decipher CW in which the dot-dash lengths, intervals and ratios or inter-character and inter-word spacing are really out of the normal specifications."

A quick look at a standard Morse timing diagram gives an indication of exactly why decoding Morse by machine can be difficult (see **Figure 1**).

The machine looks for patterns which follow a certain ratio of time intervals for dits, dahs and breaks. If the ratios stay constant, all is well as the machine adjusts automatically to different sending speeds.

If the ratios *vary*, however, the machine simply cannot cope and presents garbage on the screen.

The trained human brain is much better; it can compensate for glitches in sending and make sense of dits and dahs of the wrong length, fades in the signal and so on. So Morse machine-to-machine is fine... but don't expect miracles when trying to decode manually-sent code.

All is not lost, however. Decoding algorithms are certainly improving, and the machines are getting better all the time. The first Morse-decoding machine experienced in the shack here was an American model called Morse-a-Word, built from a kit. Its performance was okay but it certainly missed a few beats. The more recent PK-232 copes much better, and the even-newer MFJs and similar models are pretty good.

One way to consider going with decoding Morse by machine is to tune in your own brain over the top of the machine. Listen to the Morse while watching the screen for the results of the machine decoding and get the message from the sum of the two sources of information.

A combination of the electronic and the human brain turns out to be really quite powerful. And it's a good way to bring your Morse up to speed; after a while, you will find yourself understanding the Morse code *without* looking at the screen!

Radioteletype (RTTY)

This term covers a few different modes but they all have some elements in common. As the *ARRL Handbook* points out, the International Telecommunications Union (ITU) lumps these modes together as narrow-band direct-printing telegraphy or NBDP. This is not a term which is commonly used in amateur radio, but it does quite clearly describe what is going on: two teletype-writers talking to one another.

And this is the way it was in amateur radio until not so long ago. Teleprinters were readily available on the surplus

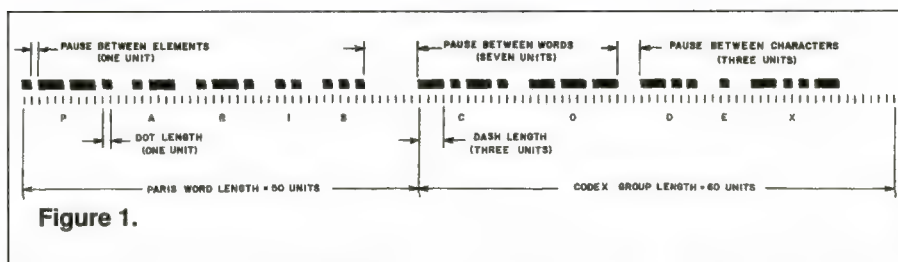


Figure 1.

market and enterprising amateurs modified them so that the tones they exchanged could be sent over an amateur radio link.

Computers have changed the scene somewhat markedly, however, but the basic principles are much the same. Each press of a key on a typewriter-style keyboard is converted into a series of digital 1s and 0s, which are then interpreted as one or other of two audible tones.

The tones are transmitted normally over a radio link and then converted back to 1s and 0s. The strings of digits recovered are finally used to drive a printer or visual display unit (often now a computer screen).

In the simplest radioteletype code, called the **Baudot Telegraph Code** (or sometimes the **Murray Code**), a limited range of letters, numbers and punctuation symbols are represented by five-bit groups of 1s and 0s. Since two raised to the power five is 32, this allows a complete character set of only 32 symbols. But with the need for 26 letters, 10 numerals and some punctuation and special codes (line feed, carriage return, and so on), this is not enough.

This problem is solved by using the code set *twice*.

One set, the **letters** case, covers mainly letters; the other set, the **figures** case, covers the rest. Two special symbols, **LTRS** or Letter Shift and **FIGS** or Figures Shift, are used to signal which case is in use.

One of the most common errors in receiving Baudot radioteletype is noticed when strings of numbers appear in the printout instead of letters; if the receiving decoder misses a **LTRS** or **FIGS** code, or misinterprets another code as one of these, the decoder ends up in the wrong case.

The point about sending and receiving Baudot code is that this time there *must* be a machine at each end. It is not possible for a human being to key a sender at a high enough

speed, although Here and There does seem to recall an article in which someone claimed to do just that (was it perhaps in an edition of ARA around April 1 one year?).

So, given a reasonable transmission path, what one machine sends, the other one can receive and decode. Timing is quite critical (see **Figure 2**), however, and a fading path or noise on the frequency can upset the whole process.

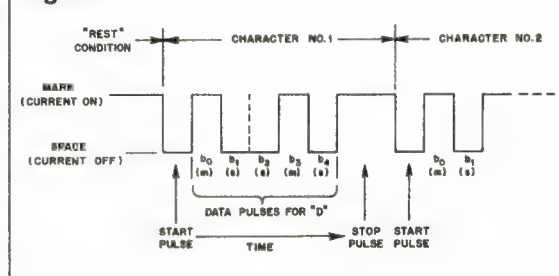
The PK-232 manual says of Baudot, "Computer-based Baudot is growing daily. The economical personal computer and the amateur radio station open new vistas of enjoyment and provide better methods of handling message traffic in the amateur radio service."

"The Baudot/Murray code, also known as the **International Telegraph Alphabet Number 2**, is a five-bit asynchronous text transmission code used for text or message transmission when you don't need the full ASCII character set. The Baudot/Murray code is still the most widely-used RTTY code format in the amateur radio service in the world."

Typical rates of sending in the Baudot code can be expressed as 60, 75 or 100 words per minute.

Because word lengths vary, however, and the numbers are rounded-off versions of original machine speeds, using these numbers can create some confusion. To address this problem, a standard unit, the 'Baud' was introduced, which is equivalent to one signal pulse per second.

Figure 2.



These leave the typical transmission at 45.45 baud, usually referred to as 45.5 or 45 baud.

It is the **MODulator/DEMulator** or **modem** which produces the translation between keypress and audio tones and back to printer or computer screen.

At frequencies below 50 MHz, a frequency-shift keying (FSK) method is generally employed. The nominal transmitter frequency is known as the **mark** condition. The **space** condition causes a frequency shift of typically 170 Hz downwards.

Above 50 MHz, the radio-frequency (RF) carrier stays on all the time, and the modulating audio signal itself is frequency shifted. This is known as audio-frequency-shift keying or AFSK.

Typically, a frequency of 2125 Hz is used for mark, while for some time the space frequency was 850 Hz higher. It is now common to use the same shift as on HF, making the space frequency $2125 + 170 = 2295$ Hz.

One thing to watch with sending Baudot RTTY is that the transmitter is going full bore all the time (100 per cent duty cycle). Few transmitters really like this heavy work, so a reduction of output power is the order of the day for RTTY and similar modes.

ASCII Radioteletype

The **American Standard Code for Information Interchange** or **ASCII** is also known as the **International Telegraph Alphabet Number 5**. It contains a more extensive character set than the Baudot code, and it is sent as a seven-bit code. Since two raised to the power of seven is 128, this allows for more characters, includes lower-case as well as upper-case, and has more punctuation and special symbols.

It is necessary to use ASCII for transmission of computer programs and executable code, since the computer using the program itself interprets the symbols as 7-bit ASCII.

Comparisons between Baudot and ASCII can get quite complex. Because more bits must be sent per character in ASCII, this would seem to indicate a lower character sending rate will result. Increasing the data rate in turn requires greater bandwidth.

Baudot groups have five bits of data, plus slightly longer start and stop pulses (total length 7.42 units). ASCII, by comparison, has seven data bits, a parity bit used for error-detection purposes, a start pulse and a two-unit stop pulse (total length 11 units).

This assumes **asynchronous** transmission; that is, there is no synchronisation required between transmitter and receiver. The group itself carries the information to indicate where it starts and ends.

An option is **synchronous** transmission, in which the transmitter and receiver are synchronised. This removes the need for start and stop pulses and shortens the ASCII group to seven bits (without parity) or eight (with parity). This makes it able to compete more fairly with Baudot for data rates through a given bandwidth (see **Figure 3**).

Finally for this month, let's look at a less error-prone form of RTTY. Next time, we'll conclude this spin through the modes with a look at some more exotica...

AMTOR

This term stands for **AMateur Teleprinting Over Radio**, and is an attempt to add efficient error-correcting procedures to RTTY. What does the PK-232 manual tell us about it?

"AMTOR, an adaptation of the SITOR system used in high-seas ship telex, uses a unique seven-bit synchronous code for error detection and error correction. AMTOR has been widely-used since 1977, and is growing rapidly

amongst amateurs who wish to obtain almost error-free RTTY under the worst-case conditions found in HF radio.

"AMTOR Mode A (**ARQ** — Automatic Request for Repetition or Automatic Repeat reQuest) is considered to be the most error-free method of HF radiogram message and text transmission available in the amateur radio service today."

AMTOR uses two modes of communication, **ARQ** and **FEC** (Forward Error Correction). In ARQ mode, the station originating the message sends a group of three characters; if all goes well, the receiving station responds with an **ACK** or **ACKnowledge** signal, after which the first station sends the next group.

If the receiver does not get a group correctly, it sends **NAK** or **Negative ACKnowledgement**, telling the sender to repeat the block. This mode of transmission is therefore restricted to two stations. Messages can be monitored by others but not in error-corrected form.

In FEC mode, by comparison, each character is automatically sent twice, 350 mS apart.

This mode can be received, correctly and simultaneously, by any number of stations on the channel and so can be used, for example, to call CQ or to broadcast messages. Both ARQ and FEC use what is known as time diversity to reduce the error rate — the assumption is that it is unlikely that a character or group sent twice will be subject to the same fading or noise and so there is a much greater chance that the message will get through.

To get an AMTOR ARQ link going, it is necessary to use a **SELCAL** code. This is a group of four characters which can be randomly chosen but which, in practice, are usually derived from the station's callsign.

The initiating station sends the **SEL-CAL** of another station, which will respond only when it hears its own **SEL-CAL**, by sending a ready signal. The first station then goes on to send the message it has for the receiving station.

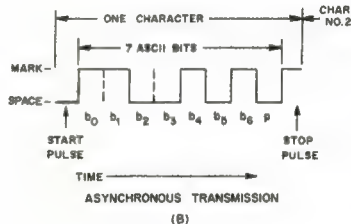
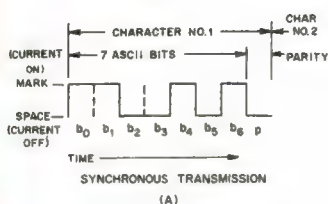
The advantage of this system is that a station can direct messages directly to individual receiving stations, which may be unattended.

Rather than getting through boxes of printer paper when monitoring an AMTOR frequency, the receiving station will print only those messages addressed directly to it.

That's the lot for this month. More exotic modes next time.

Cheers and 73 from Paul, VK3DBP.

Figure 3.



DICK SMITH ELECTRONICS

UNBEATABLE VALUE!

The deluxe 2m/70cm dual-band hand-held Transceiver that offers easier operation and more features than ever before is still available at an unbelievably low price!

The Yaesu FT-530 provides a flexible dual receiver facility with separate volume and squelch controls, allowing you to listen on two frequencies in the same band or one frequency on both bands! Plus, the exclusive Australian version features full 70cm band coverage (420-450MHz), selectable Auto Repeater Shift on both 2m and 70cm (suits Australian band plan), and extended receiver coverage as standard. Two VFOs and 41 tunable memories per band are provided, together with keypad or dial frequency entry, seven selectable tuning steps and a one-touch CALL channel. The dual 5.5-digit LCD screen is back-lit for easy viewing and includes many functional indicators plus separate signal/P.O. bargraphs for both receivers. An LCD voltmeter function is provided so you can even monitor your battery's performance under load and estimate remaining battery life.

Other top features include: Inbuilt CTCSS encode/decode, CTCSS scanning, an auto battery saver (ABS) for extended battery charge life, a cross-band repeater facility and an inbuilt clock with alarm and snooze functions.

Also provides VOX circuitry for use with the optional YH-2 headset, a user-replaceable Lithium back-up battery, and DTMF selective calling and paging. A DC supply jack allows simple transceiver powering and NiCad charging, with RF output in four selectable steps up to 5W at 12V. The FT-530 comes complete with an ultra high-capacity 1000mAh NiCad battery, belt clip, carry case and approved AC charger.

Cat D-3620

Specifications

Frequency range:

Transmit:

Receive:

Current consumption:

Auto power off

Standby (saver on)

Dimensions:

Transmitter:

Power Output:

RF Power Output:

Receiver:

Sensitivity:

Selectivity:

Audio Output (12V):

2 Year Warranty

144-148MHz, 420-450MHz

130-174MHz, 420-500MHz, 800-950MHz

150uA

16.8mA (both bands)

55(W) x 163(H) x 35mm (D)

5, 3, 1.5, 0.5 (at 12V)

2.0W (2m) 1.5W (70cm)

(Supplied 7.2V 1000mA/H NiCad)

2m: < 0.158uV, 70cm: < 0.18uV

(Ham bands only, 12dB SINAD)

>60dB

300mW at 8 ohms (at 12V)



\$699

**Still Available At This
Special Low Price!!**



Yaesu FT-415 Deluxe 2m Handheld

While stocks last, grab a deluxe FT-415 at a great bargain price!

- 144-148MHz Tx, 140-174MHz Rx
- 41 memories, 2 VFOs
- Keypad and dial frequency entry
- Selectable Auto Repeater shift (VK version)
- DTMF paging, variable Auto Battery Saver, Auto Power off, VOX, DC power socket
- Complete with 1000mA/H NiCad (2W RF out), carry case, belt-clip and AC charger

Cat D-3610

2 Year Warranty

Only \$399

Very limited stocks. Some units may be ex-demo but full warranty applies.

Also available:

Yaesu FT-815 70cm Hand-held
Similar features to FT-415 except
with 430-450MHz coverage.

Only \$399

FT-890 All-Mode Transceiver

The outstanding FT-890 is a rugged, 100-watt PEP mobile transceiver that covers all HF amateur bands in SSB, CW, FM and AM modes, plus provides continuous reception from 100kHz to 30MHz. Two direct digital synthesizers (DDSs) provide pure local signals and fast t/r changeover, while the low noise receiver front-end offers excellent receiver dynamic range performance. The switchable RF amplifier and a 12dB attenuator provide clear copy of even extremely strong signals, while interference rejection is facilitated by both IF Shift and IF Notch filters. Two independent VFOs per band are provided, plus 32 memories which store data from both VFOs. There's also an effective variable noise blanker, and a CW iambic memory keyer plus an adjustable passband-shifting speech processor which lets you tailor SSB transmitter audio to your own voice and microphone characteristics.

The FT-890 weighs less than 6kg, uses modular design and surface-mount components to ensure highly reliable operation and comes complete with an MH-1 hand mic. An optional internal automatic Antenna Tuner (ATU-2) is also available, which can be controlled from the front panel.

Cat D-3270

\$1995

Limited Stocks



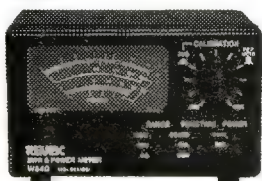
2 Year Warranty

Quality Transceiver Accessories!

VHF/UHF

Power/SWR Meter

A high quality SWR/Power meter suitable for amateur, UHF CB and commercial applications. High-quality Japanese construction assures you of maximum reliability. It has an all-metal case, large meter display, 140-525MHz coverage with less than 0.3dB insertion loss, and 4W, 20W & 200W power scales. Revex model W540.



Cat D-1370

\$199

With PEP Reading!

HF/6m Power/ SWR Meter

A quality wide-band SWR/power meter with accurate PEP metering. Manufactured in Japan, it's very well constructed with an all-metal case. Features include a large, back-lit meter, 1.8-60MHz coverage with less than 0.1dB insertion loss, 20W, 200W and 2kW power scales, and LED indicators for Average/PEP operation. Requires 13.8VDC at 200mA. Revex model W502



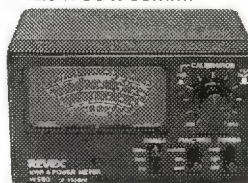
Cat D-1360

\$199

Revex W560N

HF/VHF/UHF SWR/PWR Meter

Another quality Revex wide-band SWR meter, offering 2 inbuilt sensors for 1.8MHz to 525MHz coverage! Provides measurement of 3 power levels (3W, 20W, 200W), SWR (at low and high power levels) and uses an N-type socket for the VHF/UHF sensor to ensure minimal loss. Measures 120 x 80 x 85mm.



Cat D-1375

\$369

Limited Stocks

Rugged HF 5-Band Trap Vertical Antenna

The rugged 5BTV is a 5-band HF trap vertical which continues the Hustler tradition of quality and performance. It incorporates Hustler's exclusive trap design (25mm solid fibreglass formers, high tolerance trap covers and low loss windings) for accurate trap resonance with 1 kw (PEP) power handling. Wideband coverage is provided on the 10, 15, 20 and 40m bands (SWR typically 1.15:1 at resonance, < 2:1 SWR at band edges) with 80kHz bandwidth typical on 80m at less than 2:1 SWR. An optional 30m resonator kit can also be installed without affecting operation of the other bands. High strength aluminium and a 4mm (wall thickness) extra heavy-duty base section guarantee optimum mechanical stability. At just 7.65m, the 5BTV can be ground mounted (with or without radials, although radials are recommended), or it can be mounted in an elevated position with a radial system. Unlike some other antenna designs, the 5BTV can be fed with any length of 50-ohm coax cable.

Cat D-4920

\$299

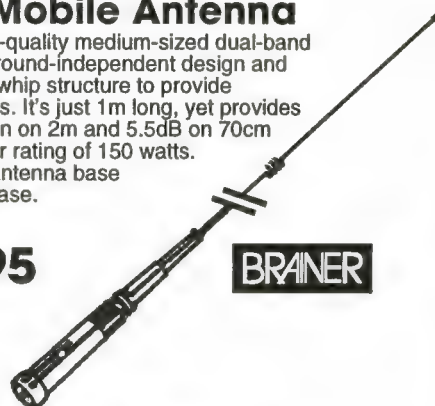


2m/70cm Mobile Antenna

The ST-7500 is a high-quality medium-sized dual-band antenna that uses a ground-independent design and tiltable stainless steel whip structure to provide excellent mobile results. It's just 1m long, yet provides approximately 3dB gain on 2m and 5.5dB on 70cm with a maximum power rating of 150 watts. Requires an SO-239 antenna base or SO-239 magnetic base.

Cat D-4810

\$79⁹⁵



BRANER

2m/70cm Hi-Gain Mobile

The ST-7800 is our best long-range, dual-band mobile antenna providing high gain (4dB on 2m and 7.2dB on 70cm), while only 1.5m in length. It incorporates an inbuilt tilt-over mechanism and has a maximum power rating of 150 watts. Requires an SO-239 antenna base.

Cat D-4815

BRANER

\$129⁹⁵



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With sunspot Cycle 22 virtually vanished, many of us belonging to the DX fraternity now find we have some time in the shack to catch up on some radio 'bookwork' so to speak. This bookwork usually comes in the form of checking back through the log entries to see what we may qualify for award-wise and whether it is worth the effort in chasing up the needed QSL cards.

The pursuit of awards is well entrenched within the hobby of amateur radio, and quite often the newcomer is often confused — or lost altogether — about the available awards and what award chasing is all about.

However, in most cases, once bitten with the award-hunter's 'bug' there is often no turning back so let's have a look at what it's all about.

What does an award look like?

Awards are issued to qualifying radio amateurs and shortwave listeners in the form of a heavy paper 'diploma' style certificate which you can then frame and hang on the shack wall. For those who really achieve excellence in the hobby, a plaque, trophy or medallion may be issued in recognition of that really outstanding performance. In the majority of cases you will find the award is issued in the diploma-style wall certificate format. As with the humble QSL card, the award is often referred to in radio jargon as 'wallpaper'.

The size (and sometimes the shape) of the certificate varies as much as the sponsors who issue them. Some are really professional-looking in appearance and will always attract attention with casual visitors who spot them mounted on your shack wall. A well-presented award certificate usually entails a lot of hard work in the overall design and the paper used is of good quality. On the other hand, over the years I have come into contact with some awards which, frankly, look very trashy. Usually, but not always, the trashy awards are the ones most easily obtained.

A couple of years back a radio club in Sydney was issuing an award certificate (I was told it was 'handsome') for working 'X' number of club members in a prescribed amount of time while the club was celebrating one thing or another and passing it off as a special event.

Anyway, I happened to work the required amount of members needed for the award on the club net over just two check-ins. But gee whiz, even for only \$5 it was simply not worth the bother.

The award when it came, was poorly designed and lacked credibility. My 13 year-old daughter could have designed

Award hunting... What's it all about?

By Jack Haden, V63JH/T30JH

better in her art class and, despite sending my application type-written, they still couldn't spell my name correctly on the certificate.

Oh well, they did get my callsign right!

Who issues awards?

The majority of recognised amateur radio awards you will encounter are more likely than not issued by the various national radio societies, such as the Radio Society of Great Britain (RSGB), American Radio Relay League (ARRL), Japan Amateur Radio League (JARL), International Amateur Radio Union (IARU), The New Zealand Association of Radio Transmitters (NZART) and our very own Wireless Institute of Australia (WIA).

Some private or local radio clubs, as well as prominent DX groups, also issue awards often associated with the club's main vocational activities. Even an American amateur radio magazine publisher, CQ Communications, sponsors many prominent world renowned awards and trophies.

What's in it for me?

Amateur radio, as far as award collecting is concerned, is closely related to sporting hobbies that we often indulge in. We collect certificates of merit, trophies, plaques, and cups for winning or achieving activities such as target shooting, horse riding, running, swimming, golf, tennis, darts, snooker and lots more. As with the sporting trophies, amateur radio awards have to be earned too! So, like the sporting arena, amateur radio awards are sought after as a sense of achievement and represent reaching a specified target in order to qualify.

Thus, the awards are displayed on the shack wall with pride, as one would display sporting trophies on the mantelpiece. Some amateurs bursting with pride in the awards department make it public to other amateurs around the world by clearly displaying their award merits on the face of their QSL card. To the newcomer, the following abbreviations seem very esoteric: WAS, WPX, WAZ, WAP, WAJA and DXCC being the most commonly displayed. I will explain the meaning of all these abbreviations

plus others later in ARA and what you will need to qualify for them.

So in essence, awards represent a sense of 'feel good' at a job well done or give us a real sense of achievement that we have been there and done that so to speak. For some, award hunting is often linked to 'keeping up with the Joneses' to maintain group acceptance or bend to peer pressure.

Like the QSL card being proof of the contact, the award is proof of recognised merit. Awards stimulate interest in our hobby, and thus promote and generate use of the bands allocated to us and in turn help keep our radio hobby alive with new and established challenges.

Life is not meant to be easy ... the rules

As with the majority of things we encounter in life these days, there are rules and regulations in place, even governing the humble radio amateur seeking an award for his/her hard work and long hours spent at the radio controls. Just as there are many types of awards available covering a variety of aspects relating to achievement within the hobby, there are of course different sets of rules to apply to individual requirements or circumstances.

There are award rules covering geographical restrictions or locations (eg, the WAZ and DXCC awards), some awards are only available to certain licence holders, and others to those who operate under restriction (eg 'QRP'; under five watts output). You will also find that some awards are only available to financial members of particular radio clubs or groups only.

Before applying for an award it is wise to obtain the current rules and requirement information sheet from the issuing body.

Costs may be involved...

Some awards attract an issuing fee which you must pay with your application. The fee usually covers the cost of returning QSL cards sent by you for checking (if required) and the processing and postage of the actual award. The fees vary from sponsor to sponsor and from member (usually free of charge) to non-members (who pay a published fee).

Fees are usually payable by bank draft (payable in the currency of the country you are sending to for the award if overseas). If it's only a few dollars you can send International Reply Coupons (IRCs) available from your Post Office. Sometimes 'greenstamps' (US \$1 notes) will also be accepted as payment. However, be cautious of sending currency in the mail as there are laws governing this activity.

The initial application

When applying for an award it is important to have all the facts regarding the requirements firmly established. Some radio award sponsors will *not* accept award applications on non-official forms — some won't even accept photocopies of the original forms. So if the request is that the application be submitted on original stationery then it is best to do so.

When filling out an award application it is highly desirable to have the form details type-written, especially in foreign countries where English is not the native tongue. If you must fill it out by hand, use a black or blue pen, not other fancy colors, and certainly not pencils. Also, use block letters at all times so that any potential handwriting confusion is lessened. When sending away for award information and application forms, be considerate and courteous by supplying a Self-Addressed Envelope (SAE) with your inquiry along with a couple of IRCs or possibly greenstamps to assist with return postage from their end. Don't forget, most award managers are volunteers and do not receive 'annual budgets', so contribute something for the return postage at all times.

Keep in mind that applications can sometimes be obtained from overseas official checkpoints or your own radio society, if the federal awards manager there happens to represent some other societies. If this information is hard to obtain, send direct to the sponsor in question, as they can inform you of any local checkpoints or agreements they might have with your national radio society.

Current address information for worldwide radio clubs and societies can be obtained from the latest copy of the International Radio Amateurs Callbook, which is published annually. Or you could ask someone on air you happen to contact in the country concerned.

There are books which deal with awards and supply sponsor addresses should they be outside the usual clubs and society sponsorships. If you are a member of the WIA in Australia you can write to the federal awards manager and



obtain overseas club award information — but don't forget to quote your membership number, and enclose a SASE for any reply.

To send QSL cards... or not to send?

The submission of actual (originals... no photocopies!) QSL cards via the post in order to claim an award has been a contentious issue with many radio amateurs around the world. Often reports are heard that the QSL cards Joe Blow, VKxxx, sent have failed to arrive at the intended award manager's desk for inspection, or that Joe Blow, VKxxx failed to get them back after inspection and thus they were evidently pilfered or lost in the mail system!

To claim some awards, or to seek additional credits or endorsements for others, it is often required by the issuing sponsor in charge of the award to request that actual QSL cards be sent for inspection prior to your credits being approved. It's not that nobody trusts you, but there have been a few recorded cases of cheating with the details on some QSL cards being deliberately altered or a forged card being substituted so that an award endorsement can be claimed.

I remember most clearly of an incident that occurred a number of years back involving an American radio amateur and a well-known DXer who was caught out sending his own 'version' of a particular QSL card from a very rare country in order to access the 'Honor Roll' at DXCC.

You see, this particular radio amateur was a professional *printer* by trade. Oh, he had done an excellent job on the

The WAC (Worked All Continents) award is arguably the easiest to obtain of any international awards - it only requires "two-way communication with other amateur stations in each of the six recognized continents". This is an IARU sponsored award.

card but the card aroused the suspicion of the processing officer who, after further investigations, found the submitted card to be a total forgery in every respect!

Sadly, cheating still goes on today and thus these strict guidelines are in place for a purpose... to protect the integrity and respect of the award in question. So in the majority of instances, you *must* have the claimed QSL cards on hand either to send for inspection should the need be, or if requested by the awards manager for inspection.

The QSL cards must be in relatively good condition, unaltered (liquid paper or sticker alterations are unacceptable) and contact details clearly displayed. Do not attempt to 'touch up' old QSL cards for any reason as this makes them null and void instantly.

Also, it pays to make sure that QSL cards with computer-printed stickers quoting contact details are in fact signed by the issuer.

There was an instance not long back where one particular award sponsor refused a number of QSL cards from a DXer due to the fact that the computer generated labels on the cards were not signed by the person issuing the QSL, so be warned!

....

Award hunting... What's it all about?

(Continued from previous page..)

Established QSL checkpoints

As an answer to the just-discussed problem of sending valued hard-won QSL cards through the post, some popular amateur radio awards issued overseas have appointed application/QSL checkpoints in various countries with a reasonably high number of resident radio amateurs.

The idea is to cut out some of the time and expense involved in the QSL screening process and also to give some amateurs peace of mind by avoiding the sometimes harrowing process of parting with original QSL cards via the mail system to apply for some awards. Some radio societies even set up QSL checkpoint booths at annual field days and hamfests so amateurs can bring the cards personally and have them checked on the spot — a good idea in any award hunters book!

Here in Australia and New Zealand there are a number of 'checkpoint' officers authorised to check, on behalf of the overseas award sponsor, your application and original QSL cards. This is often done on the spot, or via the mail if you live quite a distance away from the nearest checkpoint officer.

Just recently I used the volunteer checkpoint services of Ken Jewell, VK3AKK in Melbourne when I needed to apply for the *CQ Communications*-sponsored Worked All Zones (WAZ) award. I felt much better taking up 10 minutes of Ken's time whilst he checked my application and cards on the spot rather than risk sending them in the mail to the USA for processing.

So it often pays to check up on the award details that you are seeking before rushing about and mailing things off, as there may be an Australian or New Zealand checkpoint officer available to help make things that little bit easier and provide you with peace of mind instead of worrying about valuable QSL cards floating about the international postal system.

Affiliated checkpoints

Quite a number of prominent award sponsors appoint overseas radio society Award Managers as their official checkpoint, thus again saving you the worry and burden of sending original QSL cards overseas risking loss. Financial members of the WIA here in Australia can access this service by contacting the federal awards manager in Melbourne to find out if there is a divi-

sional checkpoint officer near them. Non-members of the WIA would be well advised to send a SASE with any inquiry and I am sure any information you may need will be furnished via this method.

Regarding our own WIA-sponsored awards, some of these awards can be partially processed by having two financial members of the WIA in your area sight the original QSL cards for the award you are claiming.

Make sure they clearly state their names, call signs, addresses and, of course, their membership numbers on your application before sending it off. It may also be a good idea to keep a photocopy of the completed application in the off chance it does get lost in the mail!

With any award application, always keep a photocopy of proceedings until you have the award in hand. However, you must remember that not all WIA awards can be processed this way. Some, including the sending of cards, have to be processed by the federal awards manager.

Some award requirements are quite simple and place trust in you as an honest person not to cheat or defraud in any way to promote the success of your application. Certification is usually a quick way of making application. This is done by having two licenced local radio amateurs inspect your log sheets and sign the application that they have found everything to be in order regarding the award requirements, ie that you have established proper two-way contact with the stations required for the award pursued.

Again, make sure that each amateur who checks your log extracts and application clearly prints his or her name, address, and call sign. It may also be an idea to quote their WIA membership number if they are in fact current members.

Some sponsors may need photocopies of log extracts together with the completed application form. If this is the case make sure that all copies are clear and easily read.

Sometimes it is permissible to use both sides of the copy paper but usually they expect one copy made per side per page.

Make sure the copies are pinned/clipped or stapled together in running order to make inspection quick and easy for the checking officer.

Don't forget he or she is a volunteer and doing this service without financial reward.

Sending QSL cards?

Should there be no other way than

sending the actual QSL cards you must then make sure that the 'pick of the bunch' are being sent for inspection. If you have two or three QSLs covering the same requirement, then pick the one which is the clearest and most presentable.

Do not send cards that have been altered in any way (liquid paper or sticker alterations are *not* acceptable at any time) as they and possibly you too will be disqualified immediately.

Do not be tempted to 'touch up' any QSL card in order to enhance its overall appearance in order for the card to be accepted.

This is called cheating, or just plain fraud!

Get caught doing this and you could end up disqualified for life in obtaining any further awards from that particular sponsor.

Being labelled or known as an award cheat is about as low as you can go in the DX world and you will lose the respect of your fellow amateurs quickly.

If a card is questionable and you have no other to send in its place then send it off as it is and hope that the awards officer will be a wee bit sympathetic to your cause.

If worse comes to worst you may have to rework that area or call sign prefix again to hopefully get a better card should you be knocked back on the previous one sent.

If it is extremely rare or hard to rework you may consider writing to the station worked and ask for a fresh card to be issued in lieu of the deteriorated one, which often works. Make sure he or she is still at that address first before sending away!

Knocked back for a JARL award

I was recently knocked back by the JARL for a Worked All Japan Award as one of the QSLs submitted failed to have the operator's prefecture displayed on the card, even though he is known (listed in the current callbook) to live there.

So I had to go back through my cards and submit another — lucky I had plenty of spare Japanese cards to fall back on and hadn't yet thrown them out!

When claiming awards associated with countries, zones, grid squares or states, always make sure the cards sent have the required information printed clearly on them otherwise they may not be accepted.

A lot of amateurs have shocking QSL cards with a lot of important award-hunting information not stated on the card, with zones and grid squares being the most evident examples.

Make sure the cards are packed well and firm with no freedom to move around in the package.

You can use padded bubble post-packs from the local post office or, better still, there are some Australia Post-marketed small boxes which come in a variety of sizes and will accommodate cards comfortably.

Wrap elastic bands around the bundle of cards to prevent any possible separation should the package be damaged along the way. It may also be a good idea to seal the bundle of cards in plastic wrap to stop any potential moisture contamination. Cards that become wet stick together and the ink runs and thus they become unreadable, so be prepared: seal them before you mail them.

To save time and win friends, make sure your cards sent are sorted into the order required for the award prior to mailing as it speeds up checking and saves time.

Changing/changed your callsign?

From time to time some of us have a need to make change in our lives and amateur radio is no exception.

Some of us start at Novice or Limited level, maybe even combined and then progress to an Unrestricted licence, thus a new callsign is issued.

One may even change callsigns because their initials become available or a much-prized (I cannot understand why?) two letter callsign comes up for grabs. So in DXing we start to get QSL cards with the new callsign displayed whilst we still have cards from past contacts stored away with the 'old' callsign on them.

Providing you don't move location then the new DX cards arriving with your new callsign will be okay to mingle with those of the old callsign for certain types of awards or credits to existing tallies held under the old callsign.

Don't chase Novice awards if you're not a Novice

However, you could strike problems if pursuing a Novice-only award, unless of course you decide to keep your old Novice callsign and work the additional stations needed (at Novice power levels of course!) under that callsign.

If you move interstate then you are back to square one as far as the majority of reputable awards are concerned.

Those who work exotic DX on the VHF bands have to make sure if they move house locally that they do so within the same grid-square locator.

Move out of your old grid-square locator VHF-wise and you will find it changes the whole ball game with certain awards

when claiming such from a particular grid-square.

Simple callsign changes are acceptable. For example, say you changed from VK2AA to VK2ZZ and still reside at the same address, all that is needed here is a simple letter of explanation covering the change when you apply for the award.

Make it clear the final callsign you are claiming the award under too!

Working the right stations to qualify

The more 'common' your callsign prefix, the harder it is to knock over the tally required for most award qualifications. An award obtained easily by a rare or semi-rare DX station in a matter of hours or days could take months or years to earn if you are a humble VK2, VK3 or VK4.

Naturally your chances would be somewhat better if you were a VKØ! As we all know, the DX station is going to get quite a pile up in response to his/her CQ call whereas we will be lucky to pull in two or three replies to our call at the most!

A number of years back when I had an "exotic" callsign, I qualified for Worked All States (WAS) award, which is a contact with each of the 50 states that make up the USA — and did the lot in one night.

The 20 metre band was wide open to North America and I worked the entire 50 states needed in one big three hour-long pile-up.

I could never *ever* repeat that feat as a humble VK2GJH in a month of Sundays. An easier way than yelling your guts out calling CQ and usually getting stations replying that you *don't* need is by joining a good net. If you are after DXCC then a DX net is an excellent way to go.

Work 'em on a net

While activity has hugely declined due to propagation, there are still a number of active nets both here and overseas.

I found as VK2GJH the best way to work all American states on 10 metres was by checking in to the 10-10 nets and, sure enough, after a couple of weeks I had all 50 states in the bag.

Zones, continents, countries, JOTA and strange prefixes are all usually found on DX nets, although a lot of IOTA activity happens on IOTA meeting frequencies.

So by joining a net, or just by simply tuning around you can usually find some ways to increase your tally for award requirements.

Some awards are easier to obtain on certain modes of emission than others.

The CQ-sponsored Worked All Zones (WAZ) award is a good example.

I found the 40 zones needed to qualify for the award reasonably easy to get on 20 metres SSB when I was T20JH in Tuvalu some time back. However, on 20 metres CW it was an entirely different story, and by the time I left the country I was still short seven zones to secure the award on that mode. A lot of results can be obtained by checking into nets, or just by tuning about.

Listening in to others often nets a catch — really there are *no* club secrets when it comes to chasing awards, just patience and luck!

Don't forget, most awards can be issued to specific needs, like 20 metres SSB, 20 metres CW or, for the adventurous, five-band mixed awards are available or you can claim a singular mode if that is how you achieved it.

At least it keeps our bands alive...

So you can virtually go on chasing awards for *ever* as we have an abundance of bands, modes and awards to keep us occupied and present us with another challenge, but most of all to keep our bands alive.

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The concentration of VHF activity is over for another summer season. Those who have been glued to their operating chairs can now make peace with their spouses and perhaps reacquaint themselves with their children.

The traditional emphasis on a summer VHF season partly relates to the strength of Sporadic E contacts normally occurring during the summer months. Also, the massive air and ground temperature differential, both first thing in the morning and after sunset, often creates dramatic ducting and propagation over normally impossible paths.

However, the last couple of summer seasons have not exhibited anything like the level of ducting we would have normally expected.

What caused this is certainly beyond my expertise to speculate on; I would, however, suggest that we could expect conditions over the next few months to be at least as good as, and possibly better than, those during summer.

RECORD-BREAKING ACHIEVEMENTS...

Despite the somewhat lacklustre conditions on the east coast, three significant records were broken during the course of the **Ross Hull** contest:

The VK2 10GHz record was broken in January with a contact between **Lyle, VK2ALU** operating from Mt Coree in the ACT and **Bill, VK2ZAC** operating from Mt Canobolas near Orange. This contact might seem easy compared with Lyle's EME contact with WA7CJO back in October, however, it still represents a record. The total distance was 217 kilometres.

Thanks to Mt Coree being on the ACT/NSW border, Lyle took the opportunity to relocate his compact equipment and make a repeat contact from within NSW, thus setting two records.

It is interesting to note how many hills in the ACT have been chosen as landmarks for the border.

There have been numerous field stations which have mistakenly been set up on the wrong

side of a hill, unaware that they were actually operating in VK2!

A much greater distance, but over water, was accomplished on 10GHz before the New Year by **Roger, VK5NY** and **Wally, VK6KZ** working across the Great Australian Bight for a state, country and world record.

The contact, which was predicted to be feasible, came about after considerable preparation and comprehensive testing over shorter distances. Congratulation to all concerned.

The ARRL issued the following press release to advise of the pair's success:

10-GHZ RECORD CLAIMED

Roger Bowman, VK5NY, and **Walter Howse, VK6KZ**, have claimed a new world distance record on the amateur 10GHz band.

On December 30, 1994, the two worked over a path of 1911 kilometres. Both VK5NY and VK6KZ were portable, the former near his home in Adelaide and the latter portable near Perth.

VK5NY used 180 milliwatts to a 400mm dish while VK6KZ ran 100mW to a similar antenna. The two-way contact was on SSB.

The previous 10 GHz record of 1018 km was held by WA6CGR and XE/N6XQ. N6CA and KH6HME continue their efforts to span the 3973-km path between California and Hawaii on 10 GHz.

Howse said there was a typical high pressure cell in the Great Australian Bight, a large inlet body of water, and that good signals were present over the 1900km, nearly all-water path on 144, 432, and 1296 MHz. On the second night, VK5NY drove 250km to another location in an attempt to once again increase the record distance, but no contact was made.

VK6KZ reports hearing, and being heard by, David Minchin, VK5KK, a few km farther than VK5NY, but no 10GHz two-way contact resulted.

VK6KZ lives about 1000 km (some 600 miles) from his portable location near Perth, and must drive there to

make these attempts at UHF records. "I have to choose the right time," he said.

Thanks to the ARRL for that item.

Doug, VK4OE travelled to Narrabri in northern NSW to operate in the VHF/UHF field day during January. Doug runs a very well-equipped station on all bands with above-average field equipment on 1296MHz. Contact was established on 144MHz with **VK1DO/1** late on Saturday evening, January 14. Signals were good on both 144 and 432 MHz, however, no successful two-way contact could be completed on 1296 MHz.

Conditions at sunrise on Sunday were more promising, and a 52/41 phone contact was completed. This set a new VK1 23cm record, exceeding the distance previously set by VK2DVZ and VK1DO/1 in 1983 by around 100 kilometres. Accurate calculation of the distance is not yet complete, but is estimated at around 650 kilometres.

These distances may not sound enormous compared with many of the records that are readily set over water, however these inland paths can be very difficult to work. Congratulations to Doug, who earns admiration for his tenacity and effort in travelling nine hours each way to mount a field day station.

This is an ideal opportunity to remark on field day operation, having just completed a period of intense field appearances by numerous stations and being only one month away from the **John Moyle** annual field day.

The rules for the John Moyle place an enormous emphasis on VHF, with generous points available to even a modest station operating on the higher bands — 144, 432, perhaps even 1296 MHz and beyond. Consider embellishing your HF operation with some tested and proven equipment and antennas for the VHF and UHF bands on SSB.

Take only antennas which are of known performance and in good repair. Too often we hear of field sta-

VKs NOTCH UP SOME RECORD BREAKING CONTACTS

tions which regretfully admit that their Brand X radio was working okay until they brought in on field day and plugged it into some dubious Yagi. That discarded antenna which has been rusting outside will only frustrate you.

Feedline which is in good condition and only as long as necessary is vital to good field operation.

General guidelines in brief: Take a simple three- or four-element light-weight beam for 50MHz, and make sure it's one which doesn't require a hand from Hercules to erect. The band might still open in March, but if it doesn't, even a 10-element giant will not make it open.

For 144MHz, a 10-element beam of about 4.5 metres boom length is comfortable to transport and adequate in performance from a good hilltop. If you can reliably break a larger beam into two lengths of three metres, by all means grab it.

For 432MHz, it is a simple matter to take a beam of up to 22 elements, but some decent feedline for that band is vital.

For 1296MHz, a 40- to 50-element beam or loop Yagi is compact and light. If you have the experience, a stack of two or four will make you

competitive on the longer tropo paths. Preamps are mandatory on 1296 and 432 MHz, as most commercial transceivers are pretty deaf. If you only have modest power, don't despair, as 25 to 30 watts into a good antenna from an elevated site will work fine if you maintain good operating procedures.

Without going into nuts and bolts details on how to mount your antennas, don't underestimate the simplicity of clamping an upright support to the roof-rack of a car or a portable 'Telomast' with guy ropes which allow the antenna to be twisted by hand. Only your imagination will limit your options.

The John Moyle field day is only a month away. Form a team, distribute responsibilities and pool equipment. Write yourself a check-list while stepping through in your mind the order of operations and requirements on site. Take a toolbox with sufficient gear to contend with the unexpected: fuses, connectors, tape, multimeter etc.

The process of preparing for the field gets easier each time that you do it well. Poorly prepared operation usually breaks things and shatters spirit.

Have a go!

73 de Christopher, VK1DO



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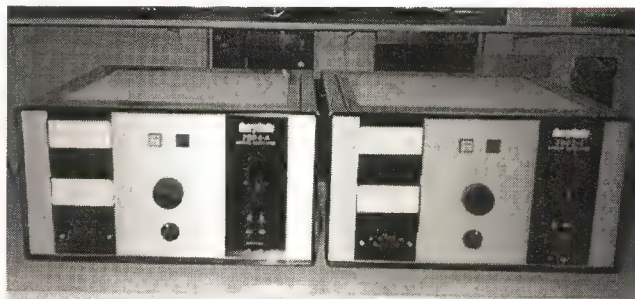
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VKØIX Antarctica worked January 13: (Yes, it was a Friday!)

0730z VKØIX Beacon 50.2005 319 to 519 rapid QSB.
0730z VK6ZAK, VK6JJ, VK6AS, FK1UH.
0731z VK6JJ, VK6ZAK worked.
0740z TV video & sound on 45/46/50/51/57/62/64/69 MHz.
0745z beacons on 50.042, 50.056, 50.057, 50.076 MHz, plus 52.325, 52.345, 52.420 MHz.
0745z VKØIX beacon on 50.2205 MHz 539 fast QSB.
0750z Meteor Burst TX 44.795 MHz (Davis Base?).
0755z VKØIX called on 50.110 MHz and heard unidentified CW.
0800z video 45.240, 45.250, 45.260, 46.2396, 46.2400, 55.2396, 57.240, 57.26035, 57.2607 MHz.
0801z Video 62.2396, 62.240, 62.2502 MHz. Sound 62.760 MHz.
0802z Video 64.240, 64.250, 64.260 MHz. Sound 69.740, 69.750 MHz.
0805z FMS 80.070, 90.105, 91.820, 96.320, 97.080, 94.660 MHz.
0810z VKØIX beacon back on and faded out within two minutes.
0845z VK6ZAK heard.

January 14:

0608z VK2BA copied VKØIX beacon weakly in noise (5500km).
0633z Beacon into Sydney again, VK2BA alerted people on six metres.
0645z VK8LM, VK8VF/B, VK8AH, (2500 km) VK1DO short skip.
0730z VKØIX beacon into VK3 S/W Victoria, alerted stations.
0750z VK3OT CW copied in ZS1 from South Pole. (Details being checked...)
0755z VKØIX copied 55.250 MHz Video from New Zealand and sound carriers from VK.
0759z VK7ZIF short skip 59+
0800z VK3OT made two-way SSB QSO 5x5. (3800km)
0802z VK2QF Mudgee made two-way SSB QSO 5x2. (4500km)
0808z VK5ARC/p copied beacon weakly then it faded out. (3500km)
0820z VK2BA heard beacon again and again at 0844z.

1105z VKØIX Beacon was heard in Adelaide, but weak.

1134z 22 long minutes later, VK5PO/p worked VKØIX very stable with VK5PO.

1136z VK5TZX, VK5ZIP, VK5ZTV, VK5ZWI, VK5ZMG, VK5UBJ.

1142z VK5GRS also VK5LP, VK5NY, VK5ZBR, VK5ZBK.

1145z VK3OT heard on CW but no QSO. VKØIX into VK3 for 15 minutes.

1150z Band dropped out to everywhere.

January 15:

The band opened to New Zealand at 2200z with strong signals from TV on video and audio frequencies... Callsigns and beacons logged were:

0700z VK5 to VK3 strong opening

0700z approx VK1RX hearing beacon up to 529 and then worked VKØIX.

The VKØIX beacon was received over a wide area of SE Australia this week commencing with Brisbane VK4AFL, Sydney area VK2APG and Hamilton VK3OT.

The readout is 50.20051 MHz USB, FSK mode, into a VEE beam on Sydney. The beacon was in for 15 minutes around 0745 to 0801z.

VK6AS was audible from Esperance like in 1992 and was liaising 2M with VK5NY who was backscattering.

0830z Approx VK2BA et al to FK8 on 2M.

January 26:

0600z VK7ZIF on short skip to VK3, VK2. ZLs all day.

0700z 49.750 MHz TV, VK5BC on backscatter from south west.

0730z Fell over VKØIX beacon using an ancient Kenwood TS-660 connected to 150 feet of RG58 with a beam on Brisbane! Strength was 539.

0745z VKØIX 50.2008 MHz 559 fast fading.

0920z beacon off; VKØIX calling CQ on 50.110 MHz 51/52 exchanged in QSO.

Reports from VK5NC and VK5LP hearing VKØIX beacon 529. No copy in ACT or Melbourne.

QSL route for VKØIX is:

13 Francis Street,
 Kapunda, South Australia 5373
 The cards will be printed shortly.

VKØIX phone number is: 0011 672 12 809. Good luck!

The email address is

darin_rob@antdiv.gov.au

The antenna is a broad-band Vee beam made from resistive wire and pointed on Sydney.

Report from VK3AMX, QF22

Jan 14

0600z VK4BRG 50.077 MHz
 5/2 VK4RGG 50.058 MHz
 5/7 VK4RIK 52.455 MHz
 5/2 VK4ABP 52.347 MHz
 5/7 VK8VF 50.057 MHz 5/1
0628z VK2RHV 52.326 MHz
 5/6
0657z VK2RSY 52.420 MHz
 5/3

46.240 MHz had QSB with strong Auroral buzz at 0600z

There were also telephone 'extenders' from Indonesia audible at around 0700z. Besides the beacons and other indicators, these stations were worked:

0620z VK8LM 50.180 SSB
 5/1 Darwin
 0656z VK5BOK 50.190 SSB
 5/5 Dale Leigh Creek PF99FJ
 0711z VK8AH 50.155 SSB
 5/5 Andrew 40 km. south of Darwin
 VK4SIX 50.145 SSB
 5/2 Bob Mt. Isa PG99
 VK4DO 50.125 SSB
 5/1 Wally Proserpine
 VK3ATL 50.130 SSB
 5/9 Mike Portable near Trentham
 1015z VK8GF 50.130 SSB
 5/2 Geoff Alice Springs PG66
 0715z? VK4APG 144.100 SSB
 5/9 Peter N/W of Brisbane
 QG62

Many, many others were heard; at about 0700z the band sounded more like 20 metres than 6 metres... It was hard to find a clear spot below 50.2 MHz to work!

Today, I know that every VK call area was on the band and being worked, the only exception was VK9 (maybe I just didn't hear any). When I say that, I mean to say that I heard stations either in these areas, or saying first hand to me that they had worked these areas. Including working VKØ, but I'll let the bloke who made *that* contact tell you about that one!

As well, ZL stations were very active and even an FK station heard by one op. Great stuff! Yesterday, I heard someone on HF here in VK say that 'six has just about had it for this

cycle'... huh?!

You didn't sell off *your* six metre rig, did you?

Hope you were on today to enjoy some of this stuff. See you on the magic band!

73/99, Pete
VK3AMX@VK3KSD.MEL.VIC.AUS.O
C

Widespread openings

Jan 6 1995:

40.670 MHz pagers 599.
40.680 MHz pagers Indoor 599+
40.750 MHz pagers 599+
44.795 MHz Pegasus Meteor Burst data system DSTO 559
ZL TV Video with some offsets 559
VK video and sound transmissions.
50.026 MHz beacon JA2IGY
50.042 MHz beacon ZL3MHF
50.057 MHz VK4RGG direct 579
VK7RNW B/S 559
50.076 MHz VK4BRG/B 559
50.110 MHz VK4SIX Mt Isa.
50.110 MHz VK3DUT reporting 144 MHz to VK4.
52.325 MHz VK2RHV/B 599
52.345 MHz VK4ABP beacon
52.420 MHz VK2RSY 599+
NZL TV Channel 2
57.240 / 57.2603 / 57.2607 MHz Aus Ch1
62.2396 / 62.2502 MHz Video NZ.
62.760 MHz TV sound
64.240 / 62.250 / 62.260 MHz Ch 2 interstate TV
69.740 / 69.750 MHz Sound
80.070 MHz interstate train control.
91.820 MHz FM stereo
94.460 MHz FM ABC stereo talk show
95.520 MHz FM same but weaker.
96.125 MHz music
98.000 MHz fine music
99.000 MHz fine music
100.350 MHz Taree commercials.
All Fast QSB
144.100 MHz VK2s on 2M working VK3
144.100 MHz VK3DUT to VK4
VK6AS on back of beam on six metres
P29 beacon
49.750 MHz TV

Voice repeater for MIR space station

An upgrade planned for the Russian MIR space station, a popular platform for amateur radio in space activities, should see a two metre to 70 cm FM voice repeater operational within the next two years, according to a report from the 12th annual meeting and space symposium of the Radio Amateur Satellite Corporation

(AMSAT-NA).

Held in Florida, USA, in early October, the symposium marked the 25th anniversary of AMSAT.

Other developments outlined at the Florida meeting covered progress on planning for the 'Phase 3D' satellite. Due for launch in mid-1996, Phase 3D will be the largest and most complex amateur satellite ever assembled.

Among the array of ground-to-satellite (uplink) channels planned is one in the 21 MHz (15 metre) HF band. Others will be in the various VHF, UHF and microwave bands. Assembly of the Phase 3D satellite is proceeding on schedule, it was reported. It will be about 2.1 metres in diameter.

Meanwhile, it seems the popular OSCAR 13, on which many amateurs 'cut their teeth' in amateur space communications, finally fell victim to a fiery death in early December when it re-entered the atmosphere.

Thanks to the ARRL Newsletter and the VK2WI broadcast for those details.

New Zealand six metre policy statement

Recognising that:

- a/. Access to all of the six metre band is of crucial importance to NZ amateurs.
- b/. TV Channel 1 is likely to be used for some years to come, by footnote.
- c/. TV 1 will likely be cleared when a better technical, economic or political solution becomes available.
- d/. Long term access to six metres requires new and sustained activity by all.
- e/. Six metre occupancy in NZ has seen a confusing variety of access policies.

NZART resolves that:

- a/. Access to the current six metre allocation will not be lessened by way of trade or negotiation by the NZART with the PTT.
- b/. Improvements of access to six metres by way of frequency range, location and times will be vigorously sought when possible.
- c/. Conditions of access be available as well as rights and obligations.
- d/. NZART will promote and publicise alternate technologies and delivery methods for television to the general public.
- e/. An ongoing dialogue with the NZ Admin, TV1 users, TV funding providers and other international amateur bodies will be maintained in order

that every opportunity for advancement of access to six metres be gained.

2M opening to VK5

VK2MZ in Forster, north of Newcastle, into VK5RMG, noise free. (I was using a hand-held in my lounge room into ch 6!)

I then went to the shack and worked the NSW repeater on 147.375 MHz about 100km north of Newcastle. Very strong signals and worked VK2XVJ mobile and VK2JRP. The latter, Ray, reported he could hear me direct.

I moved to channel 50 and worked VK2ZMK, VK2ZJB, VK2AMI on FM.

I then moved to 144.1 SSB and called CQ. There I worked VK2FJC, VK2FLR, VK2ZRU, VK2MZ, VK2VC, VK2ZNS. Signals were not very strong. I gave strength 1-3 and received 1-7.

My gear was 100W into a horizontal 10-el Yagi at 50 ft.

The opening lasted about 30 mins. My times were not accurately recorded. I heard one VK4 call me at one stage but he was weak and buried under the VK2s.

I was unable to hear him a second time.

I heard the VK2s calling only me and one VK3, although I don't know if the VK3 contact was successful.

Cheers from John, **VK5DJ**

2M report from VK2ZXC

On December 26, 1994, at 0740z a two metre QSO occurred between ZL4LV & VK2ZXC located in Port Kembla QF55km.

ZL4LV called CQ at 0735z but no two-way contact was made.

I contacted ZL4LV on 50 MHz and we moved back to two.

A two metre contact was made at 0740z exchanging 5x7 both ways. Several other callsigns were heard with rapid fading, but no contacts made.

Six metres was open all day to ZL & VK7.

My 11-el M² Yagi has been rebuilt. As soon as the weather permits, it will be put back in place at the top of the tower.

See you on the magic bands of six and two metres.

De VK2ZXC Port Kembla QF55km. (Land of bent beams and DX.)

(Report was condensed).

....

Denmark OZ

OZ 50 MHz Group is open for continental and overseas members. Are you interested? What do you get as a member? You get a quarterly printed newsletter, written in a mixture of English (construction, beacon lists, activity listings, bandplans etc) and Danish (local meeting refs.).

As a overseas/European member, you further have the possibility to have the OZ50MHz bulletin, packet bulletin, forwarded directly to you via Your home BBS. The fee for 1995 is US\$12 or 20 IRCs.

OZ 50 MHz Group treasurer
Kim S Sorensen, OZ9ABX,
Biskorupvej 24,
DK-5240 Odense NO,
Denmark

A message from Mike...

What a thrill when I started hearing from several sources that I had been heard on 50.100 MHz! We were running 50 watts and 1000 watts off and on but couldn't run continuous because of interference with the local MARS station.

We have been busy here and the MARS station is 1/2 mile away so it is difficult to just 'pop in'. I have to go 1/4 mile to get the key.

It is a royal pain considering how fickle six metres is.

Anyway I have an EME sked with W6JKV and K6QXY at 2245z to 2400z 50.042. I will be pointing 90 degrees and you VK boys will be off the back but you never know, so if you are alert something may just pop through.

Sorry we did not have a better situation here. People were most accommodating and bent a lot of the rules to allow us to set up EME.

I have had some success on two metre EME and have worked 13 stations, with one more to try with W5UN and a few others. I was able to locate the two metre EME system close to where I am working, so no real inconvenience there.

I have taken seven rolls of film and will get some printed in QST and CQ magazine, so you can see the situation here.

Thanks again for the dedication. I am working on the regulars here to try to get some more amateur stuff up on VHF, so maybe McMurdo will be

worked before too long.

Happy New year and 73 de Mike,
K6MYC/KC4.

More EME...

On December 17, 1994, the first QSO via EME between W5UN and EA9AI took place between 0530 and 0630 UTC.

W5 was heard here about 0605 UTC and confirmed QSO to 0630.

Transceiver at this end is a Kenwood TR-751E plus a Tono 250w amp. The antenna system is two 9-el Tonna F9FTs.

73 de Javi, EA9AI.

QSP

A six metre repeater is testing from Brisbane on 53.975 MHz. Please QSL any reception reports to either VK4WIE or VK4JHM. A card is *guaranteed*!!

V44 six metre beacon

The St Kitts (V4) beacon went on the air November 24, 1994, at 1635 UTC, signing **V44K** on 50.055 MHz. It is mounted atop a 3000 ft mountain with a vertical antenna.

The beacon and power supply were made and donated by Jerry

SHORTWAVE RECEIVERS

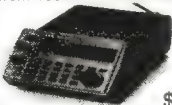
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AOR: AR-3000A

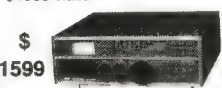
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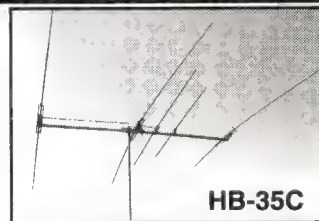
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Becker, WA8R, and they were installed by John Walker, WZ8D, Joe Pater, WB8GEX, Joel Libburd, V44KAI, and Basil Woods, V44KBW.

If you hear the beacon and would like a QSL, send your QSL with a SASE to John, WZ8D.

Joel, V44KAI and his brother Oliver, V44KAO, who live on St Kitts, are both active on six metres.

This news from Jose de Sa,

CT1EEB@CT1EDY.CTAV.PRT.EU

Thanks to VK5PO, VK5LP, VK5NC, VK3ATQ, VK3AMX, VK2BA, VK1RX, PAØHIP, SM7BBS, NZART, ANARE & VKØIX/VK5IX.

Keep the magic alive by working VKØIX!

See you next time de Steve, VK3OT.

		Channel Ø			
RTQØ	Mt Mowbulland Qld	DA 46.171	150K	S 51.672/51.915	
ABMN	Mt Ulandra NSW	OD 46.240	100K	M 51.740	
ABUN	Carpenters Hill	DA 46.240	10w	S 51.740/51.915	
ABWN	Buckeridge L/out	DA 46.240	500w	M 51.740	
ABSN	Nanny Goat Hill	DA 46.250	25w	M 51.750	
NENØ	Bald Hill NSW	DA 46.260	1000	S 51.760/52.005	

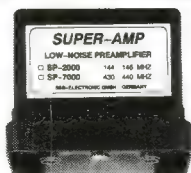
		Channel 1			
ABSN	Bimmil Hill NSW	DA 57.240	50w	M 62.740	
NEN1	Walcha NSW	DA 57.240	100w	S 62.740	
STQ1	Black Mountain	DA 57.240	3000	M 62.740	
ABAV	Mt Baranduda	DA 57.250	100K	S 62.250	
ABNQ	Mareeba FNQ	OD 57.250	16w	S 62.250	
TNQ	Spole Castle	DA 57.250	5000	M 62.250	
ABGS	Mt Burr S/E SA	DA 57.250	100K	M 62.250	
ABNS	The Bluff SA	OD 57.250	100K	S 62.250	
ABCN	Mt Canobolas NSW	OD 57.258	100K	M 62.258	
NBN	Mt Helen NSW	DA 57.258	50w	M 62.258	
ABEV	Mt Alexandria	DA 57.260	100K	S 62.260	
ABNQ	Babinda FNQ	DA 57.260	300w	S 62.260	
ABSQ	Passchendale	DA 57.260	100K	M 62.260	

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NEW 10-11 M co-linear	
VERT 6dbd	\$175
Duoband 10-15 3ele EA	\$265
3 ele 15 M	\$199
3 ele 20 M	\$298
2m 144.100 2.2 wave length boom	
.....	\$145
12 ele 2 M	\$123
80 M VERT top loaded	\$265
M B VERT NO TRAPS 10-80	\$255
13-30log-periodic 12 ele all	
stainless/stl fittings	\$885
TRI band beam no traps 5 ele ...	\$675
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NEW 6M colinear vert 6dbd	\$150
S/2 dual 2&70 sleeve co/lin	\$108
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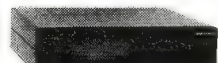
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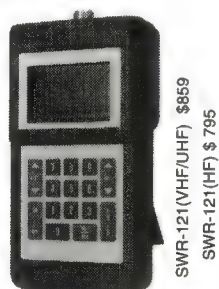
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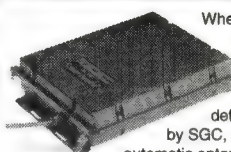
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UPGRADED MORSE TUTOR

By Neil Duncan, VK3ND

Some time back, (Vol 13 No2, p33, to be precise), we published a 'Morse Code Generator' to assist those studying for their full or novice tickets. This was written in IBM BASIC and carried the dual incentives of i) being as short and easy to type as possible and ii) being as simple to operate as possible.

I have had received a lot of feedback on this most simple of programs, most of which asked for upgrades to be done. Principal amongst the requests were those for a more sensible word/character spacing, the ability to pre-record messages and the ability to better tailor things to match the newcomer. Special thanks to Quintin Foster for his suggestions.

Here then is the new version. It offers three speeds (5, 10 and 15 wpm) and it allows up to 200 messages of up to 255 characters each to be recorded and played back. The result is a program highly adaptable to the needs of the person learning the code for their novice or full ticket. The system comes in three parts.

The names of the programs and their purposes are listed here:

MORSFILE: You run this once to set up a new 200 message file or to wipe the old one out. It *must* be run at least once.

MORSMKE: This sets the messages already in place ready for use later on.

MORSE: Run this to play the messages you have recorded, new messages or random code groups.

MORSFILE listing

```
10 REM CREATE TEXT FOR THE MORSE PROGRAM
20 OPEN "MORSE.DAT" FOR RANDOM AS #1 LEN = 255
30 FIELD #1, 255 AS TEXT$
40 FOR I = 1 TO 200
50 LSET TEXT$ = " "
60 PUT #1, I
70 NEXT I
80 END
```

This creates a file which is 51,000 bytes long, initially with nothing in it. Run this program once to set the blank file up.

MORSMKE listing

```
10 REM CREATE TEXT FOR THE MORSE PROGRAM
20 open "Morse.dat" for random as #1 len = 512
30 field #1, 512 AS TEXT1$
40 GOSUB 6000:LOCATE 10,1:PRINT "1 = KEY A SENTENCE"
50 PRINT "2 = SAVE THAT SENTENCE"
60 PRINT "3 = ASK FOR A SENTENCE"
70 PRINT "4 = END"
```

```
80 X$=INKEY$:IF LEN(X$)=0 THEN 80
90 GOSUB 6000:IF X$="1" THEN GOSUB 1000:GOTO 40
100 IF X$ = "2" THEN GOSUB 2000:GOTO 40
110 IF X$ = "3" THEN GOSUB 3000:GOTO 40
120 IF X$ <> "4" THEN 40
130 CLOSE #1
140 END
```

```
1000 REM KEY A SENTENCE
1010 GOSUB 6000:LOCATE 1,15:PRINT" TYPE SOME TEXT."
1020 LOCATE 10,1:LINE INPUT ">";TEXT$
1030 RETURN
```

```
2000 REM SAVE A SENTENCE
2010 GOSUB 6000:LOCATE 3,1:PRINT "CURRENT SENTENCE";" "
2020 PRINT TEXT$:GOSUB 4000:IF LEVEL = 0 THEN RETURN
2030 LSET TEXT1$=TEXT$
2040 PUT #1,LEVEL:GOSUB 6000
2050 RETURN
```

```
3000 REM RETRIEVE A SENTENCE
3010 GOSUB 6000:GOSUB 4000
3020 IF LEVEL = 0 THEN RETURN
3030 GET #1,LEVEL
3040 S$=TEXT1$:LOCATE 8,1: PRINT "SENTENCE";LEVEL;" "
3050 LOCATE 10,1:PRINT TEXT1$
3600 LOCATE 18,1:INPUT "PRESS ENTER";a$
3070 RETURN
```

```
4000 REM ASK FOR A PLACE
4010 LOCATE 10,1
4020 INPUT "TELL ME THE MEMORY PLACE-1-200 OR PRESS ENTER";B$
4030 LEVEL=0:IF LEN(B$)=0 THEN RETURN
4040 B=VAL(B$):IF B > 0 AND B <= 200 THEN LEVEL = B
4050 RETURN
```

```
6000 REM HEADING
6010 CLS:LOCATE 1,25:PRINT "VK3ND MORSE SENTENCE CREATOR"
6020 LOCATE 2,25:PRINT "===== "
6030 RETURN
```

This program will need the file created by the first program. It is capable of recording 200 messages, each of up to 255 characters.

The character set is **A - Z** (upper or lower case), **0 - 9** and the special characters **.,?!/=** The interpretation of those special characters is given below. This program does not play the Morse and is not needed once the file is set up.

MORSE listing

```
10 REM CW PRACTICE BY VK3ND
20 DIM CW$(50),ASCII$(50):RANDOMIZE TIMER
30 MAX=42:GOSUB 5000:SPEED=2:PLAY "T160"
40 GOSUB 8000:LOCATE 10,1:GROUPS=0:PRINT "1 = KEY A SENTENCE"
50 PRINT "2 = RECALL FROM DISK"
60 PRINT "3 = RANDOM LETTERS"
70 PRINT "4 = SET THE SPEED"
80 PRINT "5 = END"
90 X$=INKEY$:IF LEN(X$)=0 THEN 90
```




DX & BAND REPORT

Now that the festive season is well and truly behind us and the dust is settling a bit, we can get back to some serious DXing again! Not sure how you got on with VP8SGP, the South Georgia DXpedition, but they were reported to be good copy on 20 metres SSB on a couple of occasions. I spent a long time chasing them on 40 metres CW, finally making it three or four evenings down the track. They were very weak here and I mean weak.

It is funny how propagation can result in a solid two-way QSO and then apparently nothing else on the band. I had just finished a QSO on 20 metres when I heard **VIØANT** call me and I turned my beam, which of course made a difference.

We had a longish QSO with no breakers and not a single call for either of us when we were finished. It was almost as though we were the only two stations on 20 metres SSB!

The story on **Gaza** continues to build and a visit by three JA stations signing own call/Gaza had a few on their toes. 200 QSOs were made and see notes later.

In my mind there is absolutely no doubt that Gaza (Palestine or whatever) has to be a DXCC addition. I say addition, rather than a new country, since Palestine is of course a deleted DXCC country, as mentioned last column.

It will be very interesting to see how this one turns out.

Now the actual call sign (eg ZC6B) to me is not the important issue — if they have been ill-advised that ZC6 (the previous allocation) was okay to use then this is something that can be put right.

In short there is no intention of deceit. If the activity is indeed coming

from Gaza (as distinct from some sort of Pirate or Slim activity, as reported in some DX circles) then this is the important issue. If there is some sort of authority from Gazian authorities presumably with some sort of Israeli input then I can't see any problems.

There are of course some doubts, but nevertheless we have now had at least four stations signing and indicating that they are in Gaza.

The issue of DXCC status will have to be addressed and a decision made at DXAC/DXCC. I for one, DXCC country to one side for the moment, hope that Palestine rejoins the ranks of amateur radio; that can't be bad.

South Georgia VP8

By the time you read this DXpedition to South Georgia will be history. I chased them for *hours* on 40 metres CW, finally making a QSO. Hours of north-south QSOs were the order of the day but of course the name of the game is QSO totals.

However, they were reported on many occasions on 20 metres SSB and it is hoped that the VK/ZL and Pacific made it okay.

QSL route: W4FRU

Antarctica

Italian Base

Luciano, signing **IAØPS**, had the gang hopping around as a station incorrectly reported (on the 14,222 kHz Net) that **1AØPS** was active on 14,195. Now 1A, the Knights Of Malta is still needed by many but I queried the PS suffix. As far as I know there is only one callsign for KOM and that is of course **1AØKM**.

Luciano was a tremendous signal, and his actual callsign is **IAØPS**, an Italian prefix. He was located in Terra Nova Bay, Antarctica, 74° 12' South and 164° 42' East. Luciano is actually **IØJBL**, who was active from HV4 some months ago.

QSL Route: IKØUSA

Australian Base

Eddie, **VIØANT** was also very good copy the other evening with me. He has tried to be very active but propagation conditions way down south can be a problem.

He sends his regards to the DXers and he mentioned that he was very happy with the special callsign issued by SMA. Eddie is, of course, also **VK4EET** and his XYL Mina, **VK4BMD** is handling direct QSLing.

Bureau QSL cards will not be available until late April 1995 when Eddie returns to mainland Australia.

QSL Route: VK4EET CBA

Other Bases

Palmer Station, Anvers Island
KC4/KK6KO
QSL Home Call

KC4/KA6JNF
QSL Home Call
Byrd Surface Camp
KC4USB
QSL K4MZU
Terra Nova Bay
KC4AAG
No Details
Yelcho Base, Wiencke Island
CE9MFK
No Details
Livingston Island
LW8EYK/Z
QSL LU4EDL
Patriot Hill Base
VE3OOG/P
QSL K4MZU

HC1JXC/P
QSL K4MZU

South Shetland (Various)

Here is an update on the **HFØPOL** activity from the Polish Base on South Shetland and some callsign confusion:

The XIX Polish Antarctic Expedition landed on King George Island on November 27, 1994 for a stay of one year. In the group there are two radio amateurs, Chris, **SP2QOH** (expedition leader) and Andy, **SP2GOW** (recently **JWØF**), who is a radio officer.

The Polish authorities were reluctant to issue individual callsigns as **HFØPOL** is already allocated to the base.

So Chris and Andy approached the UK licensing authority and Chris was allocated **VP8CQR** and Andy is **VP8CQS**.

So this explains the callsigns and QSL Manager situation:

QSL route: VP8CQR and VP8CQS:
Roman Litzbarski, DL1EHH
Danziger Str. 1,
D-42489 Wuelfrath,
Germany.

Thomas, **DL7VTS** is also active on King George Island from the German Base until late March 1995 and he signs **DP1KGI**. He is active on CW and SSB with a modest station.

QSL route: Home Call

Kermadec ZL8

The recent situation with Barry, **ZS1FJ**, with his announcement of an upcoming operation from Kermadec Island, has resulted in a release from him saying that it has been cancelled. In my view, it was unfortunate that Barry released comments to the DX sources saying that he had a ZL license (for Kermadec) and that he had appointed a QSL manager for the operation. To most DXers this is tantamount to a racing certainty for the activation of a DXCC country.

However, we know that often a licence is very easy to obtain. The SMA, for example, is very fast. A QSL manager is also a very easy step and in any case QSLing would not normally present a problem.

However when a foreigner requests permission to visit the Kermadec Group for amateur radio purposes this is the equivalent of declaring war!! The pity is that almost all DX outlets picked up the ZL8, Kermadec cry, suggested frequencies, modes and so on being given. And, why not?

ZL8, Kermadec is a rare one and has always been difficult. The attached radio amateur, if there is one, to the yearly party on Raoul Island is seldom interested in DXing. So it is a Catch-22 situation. At least Barry tried...

Egypt SU

Said, **SU1SK** has been fairly active recently, and he wishes to point out that **IK8AUC** is *not* his QSL manager. He gives the following address for direct QSLing. Egypt is still a rarish catch on any band.

QSL route:

Said Kamel, **SU1SK**,
PO Box 62,
Shobra Alkima,
13411 Cairo,
Egypt.

GHANA 9G1

Nice to have continued activity from 9G1, Ghana, which was off the air for many years. John, **9G1BJ** in Tamale, Ghana, continues to be active. Note the change in the address of his manager Paul, **G4XTA** for those QSLing direct:

QSL Route: 9G1BJ

Paul, **G4XTA**,
3, Knipe View,
Bampton,
Penrith,

Cumbria CA10 2RF,
England.

QSL Route: 9G1BS

John, **9G1BS**,
P.O. Box 3248,
Accra,
Ghana.

9G1AA: Note also that QSL cards for the recent 9G1AA CQWW contest activity by **PA3ERA** and **PA3FUE** are due out as I write this.

Lesotho 7P8

Note there is a change of address for QSL manager Mauro, **I4JEE** who handles QSL cards for **7P8EZ**.

QSL route: 7P8EZ

Magnanini Mauro, **I4JEE**,
Via Fruttet 123,
44100 Ferrara,
Italy.

The recent activity from **7P8CW** was by Rudi, **DK7PE**.

QSL route:

Rudolf Klos, **DK7PE**,
Kleine Untergasse 25,
D-55266 Neider-Olm,
Germany.

Syria YK

Those of you who worked the recent operation from Syria signing **YK0A** and who QSLed direct to Rusty, **W6OAT** will have been pleasantly surprised. I had been told that QSL cards had already been printed but nevertheless that **YK0A** QSL card came back very, very fast. So congratulations to the **W6** gang and I for one wish that more DXpeditions would do the same and QSL pronto.

QSL Route YK0A: W6OAT

Iraq YI

I mentioned **YI9CW** last column, and it is noted that the PO Box 11, Warsaw route is okay, but the box is opened when Tom, **SP5AUC** (who signs the **YI9CW** call) returns from Iraq.

Tunisia 3V8

Fast on the heels of the JA operation as **3V8BB** it was hoped that Karl, **DK2KW** who signed **3V8W** on a previous visit would be active again. It is now reported that Karl was unable to operate during his visit in December. No reason is given.

Guinea-Bissau J5

Good news for those still needing this rarish DXCC country, **J55UAB** is reported to be active and in the country for one year.

QSL route: F6FNU

East Malaysia 9M6

PB0ALB is scheduled to be active from East Malaysia until late March and will sign **9M0PFB**. Note this is a limited license callsign so activity is on 80 metres and 10 metres only.

QSL route: Home Call — direct or via buro.

Andaman and Nicobar VU

It is reported that Mani, **VU2JPS** is resident on Andaman Island for a couple of years working with All-India Radio. He is based in Port Blair and is gradually getting organised. He has been on 7060 kHz at both 0200 UTC and also at around 1400 UTC.

QSL route:

Mani, **VU2JPS**,
Senior Eng. Assistant,
All India Radio,
Port Blair,
744102 Andaman Islands,
via India.

Spratly Islands

Robin, **DU9RG** continues to say that a group of DU amateurs plan to activate Spratly Islands in April. Dates given are April 10-16 and callsign **DU0K**. Stay tuned.

Special call

The callsign **7S3OWG** is being aired until June 16, 1995 by the Jemtlands Radio Club. The intention is to promote the idea that the 2002 (looking ahead a bit) Winter Olympics should be held in Ostersund. Mostly CW activity is the word.

QSL route: SM3CVM

With 1995 comes 50 years since the end of WWII and there will be dozens of special callsigns marking this tremendous moment in recent history. A few samples will make the point: **ZS41SQN**, **ZS75SAAF**, **ZS35SQN**, **ZS50WW2**, **ZS75PVR** and **GB50GMM**.

A bit nearer to home, I hope you worked **VI8TRACY** marking that horrendous event Cycle Tracy. I remember it since it delayed my arrival in

....✉

DX & BAND REPORT (continued...)

PNG by several weeks, being originally scheduled to fly from UK via Darwin to Port Moresby in December 1974.

QSL route:
VI8TRACY,
PO Box 41251,
Casuarina,
NT 0811,
Australia.

NB If you would like a special Certificate enclose \$5 with your card.

Anguilla VP2E

Giovanni, signing **VP2E/15JHW** has been quite active on the various bands. By the time you read this he should be back home.

QSL route: Home Call

It was quite a surprise to work Paul, signing **VP2E/VK3AJJ** a few days later on 20 metres SSB long path at 1914 UTC. I had not heard Paul for some time, and apparently he has been travelling around for several months.

QSL route: VK3AJJ

Antigua V2

I worked Giovanni, **V29EI** on 18MHz CW and also on 20 metres CW a few days ago.

QSL route: I5JHW

Kenya 5Z4

Conditions to Africa have been quite good lately with several openings on both 40 and 80 metres.

I worked Gerrard, **5Z4EW** who is in Nairobi on 20 metres SSB on the short path at 1900 UTC.

QSL route: CBA

I worked Lynn, **5Z4DU** on 40 metres SSB, and he had a great signal at 1810 UTC.

QSL route: CBA

I worked Paul, **5Z4FO** on 40 metres SSB at 1807 UTC. Paul used to be very active a few years ago, and was frequently on 14222 kHz. He now says that he is making a come-back.

QSL route: CBA

I worked **5Z4RT** on 40 metres SSB at around 1850 UTC, good signals.

QSL route: CBA

Rwanda 9X5

Marco, **VE3MJQ/9X5** was a new 40 metre country for me and I worked him at 1805 UTC short path.

QSL Route: VE2PR

Bangladesh S2

Activity continues from Bangladesh, and I worked **S21YO** on 40 metres CW the other morning. He was part of the JA group on a mini-DXpedition to S21-land.

QSL route: JA2NTP

Incidentally those of you who worked Craig, **S21ZW** some time ago and are having problems getting a card, he gave a VK Manager at the time. Now try Craig, **KH8AL**. Apparently that is where Craig is now...

QSL route S21ZW: KH8AL

Cocos Island TI9

There have been problems getting that elusive **TI9JJP** QSL card. The following address for Jose is said to be guaranteed. I hope it works for you:

TI2JJP-TI9JJP,
Office Box Acct 321CR,
Jose Pastora,
6992 50th Street,
Miami,
FL 33166-5632,
USA.

Gaza

JA1UT, JO3XEQ and **JA3UB** were active from Gaza signing their own call signs /**GAZA**. It is reported that they had permission from both the Palestinian and Israeli authorities. It is also reported that authority was given by ITU to sign as they did.

There seems to be no doubt that the **ZC6** prefix remains part of the U.K allocation from ITU. The 'doubters' also seem correct when they say that it is unlikely that the ZC6 prefix would be allocated (by ITU) without due consideration. However it is also reported that ARRL/DXCC are fully aware of the situation, so we shall see. Gaza is a great example of the WFWL principle.

QSL Route for JA/GAZA: Home Calls

Bhutan A5

I would like to record my thanks to several radio amateurs who have kindly given me much input to my current task — the documentation of the amateur radio activity from Bhutan over the years.

ARRL/DXCC was generous in its assistance, especially to my question "when did Bhutan become a DXCC country and who, for example, first claimed the country for their DXCC

total?"

I would like to thank Sam, **W6TSQ** who so kindly went through his complete collection of Call Books and listed all Bhutan entries for each year — amazing. Thanks is also due to Ramon, **ZL1ARY**, Bill, **ZL4AW** and others.

Over several years I have donated dozens of QSL cards to the WIA QSL collection. I record my sincere thanks to Ken Matchett, **VK3TL** curator of the WIA collection, for his most generous assistance.

Seborga 1P

Well, one can't blame Paul, **I1RBJ** for continuing the Principality of Seborga saga. The Principality has now officially issued its own postage, with an initial issue of 3,000 stamps. Some 2,000 of these stamps have been used on a first day post card of SAS Giorgio I of Seborga.

The card carries both an Italian postmark (to make them legal to post??) plus the postmark of the Principality. It is reported by Paul, **I1RBJ** that a further stamp is to be issued in Spring this year to mark 100 years of radio.

The following Seborga call signs are said to be 'official'.

3A2LF/1P0C
G3AAG/1P0V
3A2LZ/1P0D
DK2WV/1P0W
DJ9ZB/1P0M
IK1IYZ/1P0DP
DK2OC/1P0O
4Z4DX/1P0DX
DK8KW/1P0P
DL8AAM/1P0L
DK7UY/1P0Y
F6GDV/1P0H
DL6PE/1P0X
I1A/1P3 (special call)
DJ6QT/1P0Q
I1RBJ/1P1A
G4YDO/1P0T
I1RBJ/1P3 (special call)
F9RM/1P0R

There are various QSL routes, but usually to the Home Call of the operator. WFWL.

Hong Kong VR/VS

As we all know, Hong Kong is to have a change of administration with effect from July 1, 1997 on the hand-over of this British Colony to China.

The VR2 prefix is now allocated to

Hong Kong (previously allocated to Fiji) and it has been around for a couple of years now. On the hand-over, Hong Kong will remain an independent territory as a Special Autonomous Region of China, and as such will retain its separate (from China) DXCC status.

Since December 1992 the licensing authority (OFTA) has been issuing the VR2 prefix. Existing amateurs licensed with the VS6 prefix will continue to use it until the change over point in 1997. There-after, use of the VR2 prefix will be mandatory.

Hong Kong also joins the group of countries issuing licensing permission with Country Prefix Identifier/Own Call — eg VR2/Home Call. Residents will, of course, have access to the VR2 block of callsigns.

160 metres

I've been very active on 160 metres recently, and am finally getting things organised a bit better. It is a fascinating band, and one has to be there a few consecutive days to really get a feeling for the activity.

Imagine my surprise the other morning (sunrise time) to hear the following: **SP6CHL**, **HB9ANF**, **UA3WGU**, **DK1NO**, **UA9TFO** and **IV3PRK**. A couple of mornings later **SM4CAN**, **SM6CTQ**, **SM6CVX** and **SV8ZS** hit the speaker. I managed to work several of the above stations — all on CW, as the openings are very short.

Evening time can also be interesting (sunset) and I have worked many west coast US stations. I've also worked two J6 stations — **J6/K9BG** and **J6/KS9W** — and J6 was a new 160 metre country for me.

So that is about it for the moment. Despite poor conditions there is still a lot of DX about the bands, and it is always worth a tune around. To the many who keep me informed by fax, phone and on the bands many thanks.

A special word of thanks is due to the following DX outlets: **QRZ DX**; **RSGB DX News Sheet**; **International DX Press**; **ARRL DXCC**; **Long Skip**; **EA DX Bulletin**; **Les Nouvelles DX**; **Lynx DX Bulletin** and more...

73 Jim, VK9NS

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ISLANDS ON THE AIR (IOTA)

By Jim Smith, VK9NS, PO Box 90, Norfolk Island, South Pacific 2899

Due to difficulties with the IOTA computer dBase software the closing date for this year's IOTA Listing has been extended by one month. Provided your IOTA material is postmarked not later than the end of February it will be acceptable for inclusion in the 1995 Listing.

Here on Norfolk Island I have the initial IOTA dBase software in place ready to process IOTA QSL card checks. Although it does have a couple of glitches, it is obvious that it will be a very powerful tool in dealing with IOTA award applications, and I am very impressed by it.

For example, I have received over 200 QSL cards from Frank, **VK7BC** and many of the cards are for operations that happened some time ago. In entering his cards into dBase, occasionally I got 'not okay for IOTA', or words to that effect.

A good example will be a card for a Lord Howe operation many, many years ago. Basically, the reference dBase did not recognise the call since that particular card (callsign) had never been submitted for Lord Howe OC-004 credit.

Solution?? Since the card was being checked at an official check point the reference dBase can be 'updated'. Needless to say, since I have the Lord Howe QSL card in my hand — it states clearly that it was from Lord Howe — the amateur is a licensed VK — so the card *must* count.

In overriding the 'no good' message with 'Oh yes it *is*!' the callsign is added to the reference database and Frank, **VK7BC** has a valid credit for OC-004. If, in the future, the same call is submitted from some other station then there will be no computer query.

There a couple of other areas which are helpful. Since the reference dBase file contains callsigns of every submitted card for IOTA then it can work in reverse. For example, Rick, **KH6JEB** asks where ZK1&& was — he thinks that the station was on OC-014, Manihiki. I bring up OC-014 and ask for all accepted operations, and sure enough ZK1&& is listed, so Rick is right.

As a check I can bring up OC-082, Penryn and OC-083, Atutaki and for that matter OC-012, Rarotonga to see if that ZK1&& call is listed. In this case we are in the clear but ZK1 can be awkward, so this prefix does require special treatment. H I DX A is now also putting back the real starting date to start checking cards, but we are very close now.

Activity from the frozen north (winter time) continues to be fairly low, but nevertheless there have been several bits of activity from here and there and also a couple of new ones:

AF-014	EA8AKN	Canary Islands	QSL CBA
AF-014	EA8BTA	Canary Islands	QSL CBA
AF-014	EA8RR	Canary Islands	QSL CBA
AF-048	FT5XJ	Kerguelen Island	QSL need info

AN-007	VP8SGP	South Georgia	QSL W4FRU
AN-018	VP8GAV	Alexander Island	QSL GMOLVI

AS-003	4S7RF	Sri Lanka	QSL CBA
AS-024	JS6LIH	Taketomi Island	QSL CBA
AS-066	UA0MF/A	Russkiy Island	QSL UW0MF

Note the above change of callsign. Mike was very well known as **UW0MF** but he is now **UA0MF**. UW0MF call is given for those with older callbooks.

AS-118	9K2F	Fakalayah Island	QSL 9K2RA
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EU-003	CU3/CT1DFC	Madeira Island	QSL CT1DFC
EU-073	IJ7/IK7MCJ	Cheradi Island	QSL IK7MCJ
EU-116	GD0PLT	Isle of Man	QSL CBA

NA-018	OX3XO	Greenland	QSL CBA
NA-021	8P9EM	Barbados	QSL G3VBL
NA-022	VP2E/VK3AJJ	Anguilla	QSL VK3AJJ
NA-022	VP2EHF	Anguilla	QSL CBA
NA-052	K2OLG/P	Marco Island	QSL K2OLG
NA-057	K7QXQ/HR6	Bahia Islands	QSL K7QXQ
NA-103	VP2MDQ	Montserrat	QSL K6TSQ
NA-108	J6/KS9W	St Lucia	QSL KS9W
NA-108	J6/K9BG	St Lucia	QSL K9BG
NA-160	HQ6DX	Cayos Cochinos	QSL HR2JPQ

Address for above: Juan Pablo Soto Quesada, Apartado Postal 1157, San Pedro Sula, Honduras.

SA-001	XQ0YAF	Easter Island	QSL CBA
SA-002	VP8CQJ	Falkland Islands	QSL CBA
SA-016	PR8FT	Sao Luis	QSL PS8AK
SA-079	PY1UP	Rasa Island	QSL PY1UP

NB SA-079 is a new IOTA Number. See notes below.

OC-005	VK9NV	Norfolk Island	QSL VK4CRR
OC-017	T30BY	Kiribati	QSL CBA
OC-024	T32J	Christmas Island	need info
OC-026	NH2G	Guam	QSL CBA
OC-028	V73C	Kwajalein	QSL CBA
OC-034	YC9XR	Irian Jaya	QSL CBA
OC-043	T31BA	Canton Island	QSL DF6FK
OC-043	T31BB	Canton Island	QSL DF6FK
OC-067	F05IW	Maimoana Island	QSL CBA
OC-086	WH0AAV	Saipan	QSL CBA
OC-098	ZK1KH	Puka Puka Island	QSL ZL2HU
OC-137	VK4LV	Bribie Island	QSL CBA
OC-140	VK8AN/6	Troughton Island	QSL VK4CRR
OC-141	VK8KTC	Groote Eylandt	QSL CBA
OC-162	H44MS	Shortland Island	QSL DL2GAC

The doubts about the activity of **PS8AM** and his actual location has been cleared up and he *does* count for SA-072

Congratulations to Carol **ZL1HS** for a very fast QSL card for the recent ZL1HS, **ZL4TT** operation from Stewart Island, which was a new OC IOTA Number. Another fast QSL card

was received from **GMØLVI**, the manager for **VP8GAV** on Alexander Island. Gavin made only 20 more QSOs after working **ZL1ARY**, **ZL2VS** and myself, then he had to QRT!!

Activity

Activity is promised by **K5BDX** during late January from the following spots:

NA-114	FG/K5BDX	Les Saintes Is.	QSL K5BDX
NA-147	J3/K5BDX	Carriacou Island	QSL K5BDX

Don is usually a fast QSLer.

Also, in late January by Herb, **G/OZ7SM**:
 NA-146 FJ/OZ7SM St Barthelemy Island QSL to G/OZ7SM

Deleted IOTA islands

Two islands have recently been found to no longer meet the IOTA requirements. These are:

EU-083	Palmaria
NA-045	Cancun Island

It is notified by IOTA that credit for these for these islands will be removed from all dBase entries on December 31, 1995. There is now one year to replace those islands (assuming that you have claimed them) with valid qualifying islands to maintain your IOTA score.

Additions to the 1995 directory

The following summary is given, and is a list of recent additions to the new IOTA Directory. It is completely up to date as I write this:

AF-073	3V	Qerqenah Island
--------	----	-----------------

AN-018	Various (VP8 etc)	Alexander Island
AS-118	9K	Persian Gulf Group
EU-167	CT	Baixo Alentejo Province Group
EU-168	TF	Iceland's coastal islands
NA-200	XE3	Quintana Roo State South Group
NA-201	C09	Jardines de La Reina Archipelago
OC-202	DU4	Calagua Island
OC-203	ZL3,4	NZ South Island's coastal group
SA-073	OA5	ICA Department Group
SA-074	OA3	Ancash Department Group
SA-075	OA2	La Libertad Department Group
SA-076	OA1	Tumbes/Pioura/Lambayeque Dept. Grp
SA-077	PY1	Rio de Janeiro State East Group
SA-078	HK1	Sucre/Cordoba Division Group
SA-079	PY1	Rio de Janeiro State Center Group

Interest in IOTA is gradually building up in our area, and once the IOTA checking is properly in place it is felt that this will help. Several stations are ready to send QSL cards for checking, either for an update or for a brand new claim.

Many stations are also gradually going back through their log books and I get more than the occasional query. Certainly this IOTA dBase will be of tremendous value!

QSL cards are coming in sometimes very slowly and other times the card is back by return. So like DXing, patience is a virtue...

NEWSDESK LATEST...

TWO MORE ASTRO-HAMS

Two more US astronauts have joined the ranks of amateur radio licensees and both will fly aboard the Space Shuttle Endeavour during mission STS-67 in March.

Pilot William G. Gregory is KC5MGA and Payload Commander Tamara E. Jernigan is KC5MGF.

Both took examinations with ARRL volunteer examiners on January 19 and were issued call signs on January 25, thanks to electronic filing with the FCC that has begun recently.

The 16-day STS-67 mission is scheduled for launch on March 2.

Six of Endeavour's seven crew members now have amateur radio licenses.

School groups in 26 places around the world are scheduled to make voice contacts with the STS-67 crew as part of the Shuttle Amateur Radio EXperiment (SAREX) component of this mission.

DXAC VOTES NO ON PRATAS ISLAND?

The ARRL DX Advisory Committee (DXAC) voted 8 to 7 to reject a peti-

tion to add Pratas Island to the DXCC Countries List based on Point 2(a), separation by water.

Some of those voting against cited concerns over the possibility of intervening rocks.

Others cited what they perceived as disputed ownership of the island.

SPACE SHUTTLE CREW SELECTED FOR TETHERED SATELLITE MISSION

Marine Corps Lt. Col. Andrew M. Allen will command Space Shuttle Columbia's STS-75 mission in early 1996 — the second flight of the Tethered Satellite System (TSS).

This flight also marks the third devoted to orbital investigations using the United States Microgravity Payload (USMP).

Joining Allen are Air Force Major Scott J. Horowitz, pilot; payload commander Franklin R. Chang-Diaz, Ph.D.; Italian Space Agency (ASI) TSS payload specialist Umberto Guidoni, Ph.D.; mission specialist Jeffrey A. Hoffman, Ph.D.; and European Space Agency mission specialists Claude Nicollier from Switzerland and

Maurizio Cheli from Italy.

Chang-Diaz and Guidoni were named to the crew in August and October 1994, respectively.

Four of the seven crew members flew on STS-46 in July/August 1992 — the first TSS mission during which the satellite was deployed to a distance of about 900 feet (274 meters) from the Shuttle.

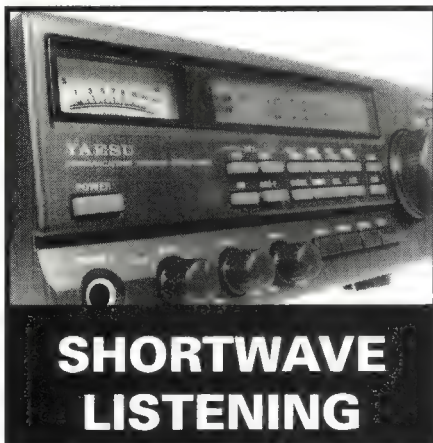
The TSS project is a joint NSA/ASI effort managed by the Marshall Space Flight Center, Huntsville, AL.

On STS-75, the five-foot diameter (1.6 meter) Italian-built satellite is scheduled to be deployed on the end of a 13-mile long (20 kilometre) conductive tether to study the electrodynamic effects of moving such a tether through the Earth's magnetic field.

The experiment also will test techniques for managing the tethered spacecraft at great distances.

Throughout the 13-day flight, additional experiments housed in the Orbiter's payload bay will permit scientists access to space for microgravity and fundamental science investigations.

The USMP is designed to provide the foundation for advanced scientific investigations similar to the first Shuttle flight.



All times are expressed in Co-ordinated Universal Time (UTC or 'z'). Add 10 hours for Eastern Standard Time, 9.5 hours for Central Standard Time, 8 hours for Western Standard Time and 12 hours for New Zealand Standard Time. Residents of states observing daylight savings time should add one hour to the above.

A feast of relays

Question: How does a station reach a distant target audience any time of the day or night at optimum signal strength?

Answer: Use somebody else's transmitter, preferably located right on the listener's doorstep.

Such a solution may appear basic, however it has taken shortwave broadcasters some decades to widely adopt interchange relay arrangements with other stations, helped along largely by the now widespread availability of satellite technology to feed the signal from the studio location to the remote transmitter.

Larger organisations such as the BBC, Voice of America and Radio Deutsche Welle have for many years established their own relay stations on foreign soil, purely because of the large transmitter capacity they require to service each target area. The Voice of America's Morocco relay base, as an example, boasts ten 500 kW transmitters — a number unlikely to be extended to them by another station on an interchange basis for long periods of time.

Maintaining your own relay site in another country does carry some risk, though.

A local coup or even a peaceful change of government can see your valuable transmitters commandeered, or even reduced to rubble — recent occurrences in such places as Liberia and Rwanda have certainly been

harsh lessons for the Voice of America and Radio Deutsche Welle, respectively.

Conversely, swap arrangements are a less risky, more cost-effective method of getting a signal to the desired target area, often without being subject to the vagaries of long-haul propagation.

Oddly, it was the religious broadcasters who were among the pioneers in this field.

Often without suitable equipment of their own, or a bottomless pit of government funds to purchase some, stations such as Adventist World Radio and the Swedish-based IBRA Radio acquired airtime on established shortwave stations, notably Radio Deutsche Welle's sites in Sines in Portugal and on the island of Malta and, in the case of AWR, also the Sri Lanka Broadcasting Corporation's Ekala complex.

Admittedly, rather than giving airtime via their own networks in return, the religious groups offered cold, hard cash for the privileges extended to them.

One particular swap arrangement that really caused eyebrows to be raised commenced in the mid 1980s when, without warning, programming from Family Radio, based in California, began appearing on oddball channels which were soon traced to a location in Taiwan.

The initial clue came from mixing products at the transmitter site which resulted in BCC (Broadcasting Corporation of China) programs being heard faintly in the background! The politics of this deal became potentially explosive when it was evident that the Voice of Free China's programs were in turn blasting out from Family Radio's own complex in Florida, targeted at mainstream America. Needless to say, the relays prevailed and have since become one of the more stable features of the shortwave landscape.

So who is relaying whom? A comprehensive list of times and frequencies would fill these pages, but it may be useful to look at some of the more interesting configurations:

Ascension Island

Radiotelevisione Italiana has a single broadcast via the **BBC's** Ascension Island relay, in Italian 0130-0230z on 6110, 11,765 and 15,320 kHz.

Austria

Radio Austria International uses a transmitter at **Radio Canada International's** Sackville site for more reliable coverage of North America (presently 0500-0700z on 6015 kHz). In return, RCI goes out via Moosbrunn to the Middle East (0300-0430z on 9505 kHz, 0400-0500z on 11,715 kHz)

Canada

The Sackville complex is strategically placed for coverage of the highly coveted North American audience, and is utilised by the following broadcasters: **Radio Japan**, **Radio Monte Carlo**, **BBC**, **Radio Austria International**, **Radio Deutsche Welle**, **China Radio International** and **Radio Korea International**.

Brazil

Radio Bras has a 250 kW transmitter which sits idle for much of the day; the slack is taken up by the **BBC**, **China Radio International** and, until recently, **Radio Deutsche Welle** and **Swiss Radio International**. One of the more interesting relays of recent times also went out via Brazil, that of **Radio Suriname International**, a service for Europe that was discontinued some months ago.

China

China Radio International exchanges facilities with **Radio Canada International**, **Swiss Radio International**, **Radio France International** and **Spanish Foreign Radio**.

Czech Republic

German commercial station **Radoropa-Info** can be heard on 5980 kHz in our late afternoons from facilities in the Czech Republic.

England

Transmitters at Skelton are made available to **Radio Canada International**, **Radio Japan** and **Radio Korea International**.

Germany

The **Voice of America** makes extensive use of **Deutsche Welle's** high-powered Wertachtal site, and recently **Radio Nederland** has begun using facilities at Nauen for broadcasts to Europe, 1130-1330z on 7130 kHz.

On the face of it, this would appear an odd arrangement, but according to **Radio Nederland**, the slightly longer

distance to the UK from Nauen as opposed to Flevoland (Holland) makes for more reliable reception. The trade off is access to RN's Madagascar relay for Deutsche Welle, in use 0500-0550z on 11,765 kHz.

Japan

Radio Japan takes relays of the **BBC**, **Radio France International** and **Radio Canada International** for broadcasts to Asia via Yamata, near Tokyo. The reverse is also applicable. Additionally, it hires transmitters in Gabon, Singapore and Sri Lanka to more effectively cover Africa and South Asia respectively.

Korea

The **BBC** uses transmitters at Kimje for coverage of East Asia, and in return the folk at **Radio Korea International** have use of the BBC's Skelton site. RKI also transmits via Sackville, Canada.

Mali

China Radio International uses two 50 kW transmitters in this West African country, in one of the more bizarre pairings on the broadcasting scene.

Romania

The government of Moldova decided to commence a comprehensive external service some months ago, but quickly came to the realisation that its high-powered site near Grigoriopol actually fell within the boundaries of the self-proclaimed breakaway state of Pridnestrovye. As a result, **Radio Moldova International** is forced to use transmitters at Galbeni, in Romania.

Russia

When the Soviet Union was formally dissolved, authorities in Russia and other former USSR republics suddenly decided that they no longer needed to deliberately jam broadcasts from the West. What better way to generate a bit of hard cash than to lease these jamming transmitters to organisations such as the **Voice of America**, **BBC**, **Radio France International**, **Deutsche Welle**, **China Radio International** and sundry religious groups!

The aforementioned customers were overjoyed at the prospect, as they were able to choose from a wide range of relay locations, stretching

from Eastern Europe right through to the extremities of East Asia.

And in the latest permutation — coming to a radio near you is **Voice of Vietnam** via Russia, for coverage of North America!

Slovakia

Transmitters at Rimavska-Sobota and Velke-Kostolany play host to broadcasts from **Adventist World Radio**.

South Africa

Relays via Meyerton include the **BBC**, **Trans World Radio**, **VOA** and, until early January, **Radio Deutsche Welle**.

Purists argue that all these relays take the fun out of shortwave as a hobby... "The German signal you are hearing isn't really coming all the way from Germany itself..." is the cry. On the other hand, the program listening community are throwing up their arms in glee at the enhanced prospects of hearing their favorite stations reliably at armchair level.

The next step, of course, is widespread relays of international broadcasters via local FM and medium wave stations in the target area. This is already happening on a small scale here, but in Europe the practice is becoming very common indeed.

A giant awakes...

It is almost 15 years since the **Voice of Chile** was last heard on shortwave, a station which, in its prime, conducted an extensive external service, including programs beamed to Asia and Oceania. Frequently heard in Australia, **Voice of Chile** was characterised by haunting chimes at the beginning and end of each transmission and a catchy signature tune.

Also prominent on shortwave was the co-sited **Radio Nacional de Chile**, a relay of the home service program from Santiago for other parts of Latin America. This continued well into the 1980s on such frequencies as 15,140 and 15,150 kHz.

It has been rumored for some years that the former **Voice of Chile** transmitting complex was on the market, and it now seems that the facility will finally come out of mothballs.

An interview by Rich McVicar on HCJB's **DX Partyline** program with Jose Holowaty, former Program Director of the recently-defunct San

Francisco station KGEI, revealed that the 9ha Chilean site had been purchased and will be used for Christian programming from the early part of this year.

The complex is said to consist of eight Harris transmitters of 100 kW nominal output, which are mostly in good condition.

A few repairs will be needed, which will be done by cannibalising some of the units. The site boasts nine antenna towers, capable of beaming to Europe, Russia, the Americas and Africa, though the main target audience will be Latin America. Intended languages include Spanish and Portuguese, with others to be added later on.

The name chosen for the station is the rather unimaginative **Radio America International**, and the earliest possible on-air target date was to be February.

Whilst not revealing the purchase price, Mr Holowaty described the transaction as a bargain; I understand the site first went on the market at approximately US\$7 million, so one could assume that the eventual settlement was somewhat less than this amount.

Country hunters will no doubt be pleased at the re-emergence of what one would assume to be an easier way to log and QSL Chile.

Departures

• It would appear that **Radio Luxembourg** has now left shortwave for good, the 500 kW transmitter on 6090 kHz and the 10 kW unit on 15,350 kHz no longer being traceable. It seems that this European principality will now only feature on longwave, medium wave, FM and satellite. News on the fate of the transmitting equipment is yet to filter through.

• After months of rumours, **Kol Israel** has announced that extensive cuts have been made to its external service. The English broadcasts at 1400 and 2230z have been deleted, whilst the 2000z transmission is now only 10 minutes of news.

Feature programs such as the mailbag and 'DX Corner' are apparently no longer. It may be little consolation to some, but at least the station remains on the air in *some* form, after languishing on the soon-to-become-extinct list for some time.

....✉

SHORTWAVE LISTENING (continued...)

Arrivals

Our Italian community will be pleased to know that **Radiotelevisione Italiana (RAI)** has seen fit to reinstate its service for Australia, discontinued some months ago on the premise that RAI transcription and news programs were available via narrowcast services and other local media outlets.

That has never really been the case in country areas, at least, so it is pleasing to note that the RAI short-wave signal is quite a large one on 11,850 kHz from 1000-1100z. This suggests a nearby transmitter location, perhaps the BBC's Kranji (Singapore) relay.

Programming is exclusively in Italian.

Denmark

Until 25 March, **Radio Denmark** has this schedule for broadcasts via the facilities of Radio Norway:

0030-0055z 6120, 6115 kHz

0130-0155z 5910 kHz

0230-0255z 5910, 7450 kHz

0330-0355z 9560, 7215, 9590 kHz

0430-0455z 7165, 9590 kHz

0530-0555z 5910, 7165, 9590 kHz

0630-0655z 5965, 7180, 9590, 11,735 kHz

0730-0755z 5965, 7180, 9590, 15,175 kHz

0830-0855z 9590*, 11,735 kHz*

0930-0855z 17,840, 17,740 kHz*

1030-1055z 11,860, 15,165 kHz

1130-1155z 7295, 9590 kHz

1230-1255z 11,850*, 15,165*, 15,605*, 15,335 kHz

1330-1355z 9590, 13,800*, 15,605*, 15,335 kHz

1430-1455z 11,870*, 15,335, 13,800 kHz

1530-1555z 9480, 15,230, 9550, 11,850 kHz

1630-1655z 11,825, 9590, 9550, 11,850 kHz

1730-1755z 7120, 9590, 15,220, 11,850 kHz

1830-1855z 5960, 7120, 9590, 11,930 kHz

1930-1955z 5960, 9590, 7215 kHz*

2030-2055z 9590 kHz

2130-2155z 9590, 9600 kHz

2230-2255z 5905, 9590 kHz

2330-2355z 6060, 6030, 7275 kHz

Frequencies denoted with asterisk (*) are specifically intended for this area. All programs are in the Danish language.

This information from Eric Koie, in 'Shortwave News'.

Moldova

Radio Moldova International is not exactly a household name in this part of the world, and in fact only keen listeners will have heard its signal on a regular basis. This problem is apparently of a worldwide nature and, as a result, collaborators of **Unda Libera** (an independent student station operating in Chisinau, Moldova's capital) have undertaken to investigate RMI reception in various parts of the world. Accordingly, reception reports are sought to the following address: RMI-Monitoring Action, PO Box 9972, Chisinau-70, Moldova 277070

The current schedule is as follows:

0130-0200z Romanian on 7190 kHz to North America

0200-0225z English on 7190 kHz to North America

0230-0255z Spanish on 11,775 kHz to South America

0400-0425z Russian on 6135 kHz to Europe

0430-0455z Spanish on 7270 kHz to Europe

1100-1125z Spanish on 17,775 kHz to South America

1200-1225z Spanish on 15,335 kHz to Europe

1230-1300z Romanian on 15,315 kHz to North America

1300-1325z English on 15,315 kHz to North America

1400-1425z French on 15,315 kHz to Europe

1430-1455z English on 15,315 kHz to Europe

1830-1855z English on 7235 kHz to Europe

1900-1925z Russian on 6050 kHz to Europe

2000-2025z French on 7235 kHz to Europe

Certainly, questionable frequency selection plays a large part in the station's difficulties, but also the choice of transmitter site: Romania and Eastern Europe generally do not propagate well into areas such as the South Pacific...

This information passed on by my colleague Patrick McDonald of Sydney.

EMU news

This has nothing to do with flightless birds, but in fact refers to the Australian Department of Defence's **Electronic Media Unit** which, among other things, operates **Australian Defence Force Radio**.

ADFR is charged with the responsibility of broadcasting information, entertainment and messages to Australian troops via shortwave. Presently our troops are serving in such diverse places as Rwanda, Somalia and Malaysia, and the small staff at ADFR provide an invaluable link with home.

Manager Hugh McKenzie has been kind enough to forward the latest schedule, though he points out that the station is experimenting with 'real time' frequency management, which means the following channels are subject to change without notice, perhaps on a phone call.

NAVCOMMSTA Canberra: 0100-0300, 0430-0630 and 1000-1200z on or around 13,525 kHz

NAVCOMMSTA Harold E Holt Naval Base, Exmouth WA: 0800-1000 and 1400-1600z on or around 15,607/18,193/10,623 or 8743 kHz.

Conditions permitting, broadcasts from Exmouth will more often than not

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* **Short wave schedules and information**

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...and much more...

CBA is on sale bi-monthly at most newsagents.

be double side-band. Transmissions from Canberra (Belconnen to be precise) are in upper side-band.

Guam

Adventist World Radio Asia has a revised schedule, which reads:

0000z Burmese on 17645 kHz, Mandarin 15,225 kHz
0100z Bangla 17,645 kHz, Mandarin 15,225 kHz
0200z Mandarin (weekends only) 15,225 and 13,720 kHz
0300z Mandarin (weekends only) 15,225 and 13,720 kHz
0900z Mandarin 11,980 and 9370 kHz
1000z Russian 9530 kHz, Mandarin 11,980 and 9370 kHz
1100z Indonesian 13,720 kHz, Mandarin 11,980 and 7455 kHz
1200z Tagalog/Ilonggo/Cebuano 13,720 kHz, Mandarin 7455 kHz, Korean 9370 kHz
1300z Bangla 13,720 kHz, Mandarin 7455 kHz, Japanese 9650 kHz
1400z Sinhalese 9370 kHz, Mandarin 7455 kHz, Burmese 13,720 kHz
1500z Hindi/Telugu 7395 kHz, Mandarin 7455 kHz, Vietnamese 9370 kHz
1600z Tamil/Marathi/Malayalam 7395 kHz, English 9370 kHz
2000z Korean 5950 kHz
2100z Mandarin 5960 and 7455 kHz, Japanese 9495 kHz
2200z Indonesian 13,720 kHz, Mandarin 7455 and 9370 kHz
2300z Vietnamese 15,610 kHz, English 11,980 kHz, Mandarin 15,225 kHz

The new program for shortwave enthusiasts, 'Wavescan', is scheduled at 2300z on 11,980 kHz Saturdays and Sundays, in lieu of the previously-advised 2315z.

The segment is compiled by AWR staffer Dr Adrian Peterson, and is read in the local studios of each AWR station.

Special QSLs are available for reception reports on 'Wavescan' until the end of March, and should be sent to:

Adventist World Radio
PO Box 29235,
Indianapolis,
Indiana 46229
USA

In further news, AWR has announced that special test transmissions for Australia are planned over a two-month period, but no dates and frequencies were available at the time of writing.

Russia

Radio Slavyanka is operated by the Russian Ministry of Defence, and broadcasts to troops near the Afghan and Tadjik borders. This schedule comes from Mark Visser, via the FidoNet Shortwave echo:

0200-0400z

4740 kHz	Dushanbe
4860 kHz	Bishkek
4940 kHz	Dushanbe
4975 kHz	Dushanbe
5950 kHz	Samara
5965 kHz	Serpukhov
6160 kHz	Ekaterinburg
7225 kHz	Kaliningrad
7235 kHz	Samara
7340 kHz	Kazan'

1700-1900z

4740 kHz	Dushanbe
4940 kHz	Dushanbe
4975 kHz	Dushanbe
6090 kHz	Orenburg
6175 kHz	Moscow
7325 kHz	Bishkek
7335 kHz	Saint Petersburg
7370 kHz	Ekaterinburg

Needless to say, all programming is in Russian.

The address for reports is:

*Radio Slavyanka,
Central TV and Radio studio of the
Ministry of Defence,
Moscow,
K-160, 103160,
Russia.*

News in brief

- A good opportunity to hear **Mauritania** at present is on 7245 kHz from sign-on at 0800z. Reception on this frequency is possible on Fridays only when, for reasons unknown, Nouakchott starts up on this channel a few hours earlier than usual. No doubt something to do with Friday being the Islamic holy day, but one wonders why 4845 kHz is considered adequate on other days of the week.

- Some interesting summer daytime signals of late have again shown that the **Radio Malaysia** shortwave outlets at Kuching continue right throughout the local daytime period, contrary to schedules consistently published in such references as the 'World Radio & TV Handbook'. Signals have been noted on such frequencies as 7130, 7145, 7160 and 7270 kHz in the period 0200-0330z, when these are all listed as taking a rest.

More news from the broadcast bands next month...

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DATE	TIME GMT	FREQ	MODE	REPORT R S	QSL	BUREAU
8/12/93	1247	14.412	X 2 SSB	5 5	YES	DIRECT

73 DE L. MARTIN

MEMBER R.O.A.R.S. - R.S.G.B. *L. Martin*

DX UPDATE WHAT'S HAPPENING OUT THERE?

4U50UN, UNITED NATIONS HQ

The station 4U1UN will be signing 4U50UN throughout the whole year of 1995 to celebrate the 50th anniversary of the United Nations which was established in 1945. 4U50UN was heard on January 1st on 30 meters around 2045z, 7009 kHz around 2200z and 3787 kHz around 2315z. QSL "ONLY" to W8CZN or WB8LFO.

7S30WG SPECIAL EVENT STATION IN SWEDEN

Just a reminder to begin looking for this station, which is trying to promote Sweden as a possible candidate to hold the Olympic Winter Games in the year of 2002.

The station located in Ostersund will mainly be active on CW but there will be some activity on the other modes and some participation in major contests. QSL via SM3CVM or bureau.

HQ CAYOS COCHINOS, HONDURAS (NA-160)

A few Honduran operators were active from here as HQ6DX during January. This island is located in the Cortes/Atlantida Department Group. QSL via HR2JPQ.

HV VATICAN

Brother Edward, W9SI/OA4SS, will be active from the Vatican City between January and March. It was mentioned that he will possibly use or be active with the callsign HV3SJ. His work as an interpreter may limit his activities, but look for him between Monday and Friday from 1400-1530z and 1930-2300z. On Saturdays, look for him from 1400-1830z and 1930-2230z, and on Sundays from 0800-1130z, 1430-1830z and 1930-2230z. QSL via I0DUD.

ST0K AND ST2AA QSL CARDS UPDATE

Dick, WB2RAJ, QSL Manager for these two stations, reports he has

only received the logs for ST0K for the period of October 26, 1993 through December 5, 1993. He has not received any logs for ST0K for 1994, nor has he received any logs for ST2AA whatsoever. Dick states Lou (ST2AA) has promised to send the logs and has given him the "OK" to have the QSL cards printed. The cards will be printed by early February, and Dick will start sending out the cards for ST0K from the logs that he does have. Dick appreciates everyone's patience especially from those who have sent for card requests and he hopes Lou will send the other logs soon.

TG GUATEMALA

Jack, KE4LWT, will be operating from here starting sometime in late January or early February through the middle of June. He has not received his callsign from TG authority yet. Jack will primarily be active in the evening between 0000-0600z in the U.S. Novice Sub-bands (especially 80 and 40 meters).

VS6 HONG KONG

Mike, VS6WV, reports he has antennas up for 80/160 meters. He suggests that 3506 and 1829-32 kHz are good frequencies for him to listen to, and he is usually on 80 meters around 1130z onward. Schedules are possible by sending a message to Mike's InterNet address: mrvestal@hk.super.net

ZK1 NORTH & SOUTH COOK ISLANDS

Joe, DL7VTK, will be active from Penrhyn Atoll (North Cook) from February 11-25th. At the present, his callsign is unknown and there is a possibility he will be accompanied Ron, DL7VDX and Juergen, DL7UVO. Activity will be on all bands from 160-10 meters which will include WARC bands.

They will be active mostly on CW, but also some SSB. For CW, check 10 kHz up from the bottom of the band's edge. There is a chance that they may be active for three day from Rarotonga (South Cook) after their stay on Penrhyn. QSL via DL3BUM or bureau.

4E7 REPUBLIC OF PHILIPPINES (DU)

The DX News Letter reports that the Philippines will begin to issue 4E7 prefixes as of January 1, 1995.

5Z KENYA

A couple of stations from here have been active on the lower bands lately. 5Z4FO has been active on 75/80 meters CW/SSB below 3800 kHz starting as early as 2215z and as late as 0415z. He has also been active on 160 meter (mostly CW) on 1832 kHz around 0100z. QSL via KB4EKY. Also, look for 5Z4DU on 75 meters SSB around 0330z. QSL via KG4X.

9M8 & AH0 EAST MALAYSIA AND NORTHERN MARIANAS

The ARRL DX Bulletin reports that Frank, AH0W/OH2LVG, one of the operators of the XF4M DXpedition to Revilla Gigedo back in October, will be active as AH0W in early March from the Northern Marianas/Saipan. His activity will include participation in the ARRL SSB DX Contest as a single-op entry. Frank will stop for a few days on business in Malaysia and will activate East Malaysia (no callsign has been mentioned). Both operations will concentrate on low bands, 20 meters and WARC bands. QSL via KE7LZ.

9Q REPUBLIC OF ZAIRE

Joe, G3MRC, is active as 9Q5MRC. He has been heard operating mainly on 20 and 30 meter CW. Activity seems to be between 1900 and 2200z.

His length of stay is unknown at this time. QSL via G3MRC.

Meanwhile, Bjorn, LA9IY, is active as 9Q5IY for three months and was heard operating on 18071 kHz around 1630z. QSL only direct via LA1K because he is not a member of the Norwegian bureau!

PA NETHERLANDS

Rob, PA3ERC, reports the "Contestgroup Oude Maas" (PI4COM) will be active in the CQWW WPX RTTY Contest as a Multi/Single entry. The callsign will be PA6WPX for this event. QSL via PA3CAL.

PACIFIC DXPEDITION

Ed, K8VIR, will be traveling to several different locations over the next six months. Activity will begin from FK (New Caledonia), but no starting day, callsign or activity of what bands have been mentioned.

The only other information reported is that he will be active from Western Samoa, Tonga and maybe a few surprise locations. QSL via CBA.

PJ9 CURACAO (Neth. Antilles)

John, W1BIH, will be active from here until mid April as PJ9JT. Activities will be on all bands and modes. QSL via W1AX.

Z2 ZIMBABWE

Bill, Z21CS, can be found most days on 18124 kHz around 1715z. The interesting thing when QSLing to Bill is he does not want any IRCs or green stamps, he would like a packet of flower seeds for his wife! QSL to: Bill Taylor, Box 264, Kwekwe, Zimbabwe.

4U1UN CARDS UPDATE

The backlog on 4U1, 4U47 and 4U48 cards are complete as of January 20th. The 4U49 cards are being processed and will be released as soon as all the cards are filled out (probably February 1st). If you do not have your cards by the end of February, contact Jerry, WB8LFO. The backlog on bureau cards are to follow. Just a reminder! During 1995 the United Nations will be celebrating its 50th anniversary.

Throughout the year, the 4U1UN station will be signing 4U50UN during many of the major contests and various times. QSL "ONLY" to W8CZN or WB8LFO.

9M8 EAST MALAYSIA

Peter, PB0ALB, will be active from Serian in Sarawak, as 9M8PFB, January 31st to March 8th. Activity will be on 80-10 meters (no WARC and 160 meters) and SSB only. QSL via CBA.

D6 COMOROS

Wolfgang, DK7UY, will be here from February 3-24th. His callsign is unknown as we go to press, but he plans to be active on CW, RTTY and SSB on 80-10 meters. Wolfgang mentions that QSLs will be sent out via the bureau to everyone in the log, but please note that there will be "NO" direct QSLing.

KP1 NAVASSA ISLANDS

A DXpedition is being planned to take place in late April or early May with possibly 5 operators.

This will be a one week operation with emphasis on the lower bands and some satellite activity. Operators mentioned so far are W5IJU, KB4VLO, and K0IYF. More details are forthcoming.

ON6TT ON THE ROAD AGAIN!

Peter, ON6TT, has taken up a two months contract as a telecom consultant for UNHCR based in the refugee camps of Goma, Zaire. He will be replacing (his old friend) Paul, F6EXV (9Q5EXV). On his way to Africa, Peter will be active first from ITU Headquarters in Geneva as 4U1ITU.

Peter will try to make some weekend trips to Rwanda (9X) and Burundi (9U), depending on available transport, time and personal security. His tentative callsign would then be 4U/ON6TT (with the necessary paperwork for DXCC approval).

With time permitting, he will also try to be active in the CQWW WPX, CQWW 160 and ARRL DX Phone Contests. During Peter's stay in Africa, he will concentrate on WARC bands and lower bands, however he wants to remind everyone this is not a DXpedition, so his time on the air might be limited, but he will do his best. QSLs for this tour go to ON5NT - Ghis, CBA or bureau.

V6 & KC6 MICRONESIA AND BELAU

JA2NQG and friends will be active from Pohnpei, February 17-23th, as V63WW. They plan to participate in the ARRL CW DX Contest and be active on the lower bands. From February 24th to March 1st, the group will travel to Belau to be active as KC6CW and KC6WW. QSL via JA2NQG.

VK AUSTRALIA

Steve, AA8JK, will be traveling with his wife Andrea, KB8LBQ to participate/compete in the 1995 World Police and Fire Games in Melbourne, February 26-March 4th. These games are the Olympics for police and firefighters worldwide. Steve is a firefighter with the Miamisburg (south of Dayton) Fire Department. After the games, Steve and his wife will travel to Queensland (VK4) where Steve plans to be active in the 1995 ARRL International DX Phone Contest as VK4SID.

Steve reports that his callsign VK4SID and his wife's call VK4JAK have been OKed by the WIA, but they have not received the paperwork as of yet. After the contest, they plan to travel to some of the Australian islands of Queensland for some IOTA activity. Their IOTA operations will be limited by sunshine and warm water. On or about March 12th, they will trav-

el to Hawaii for more sun and fun. They hope to be active from KH6-land, March 13-17th. QSL to: AA8JK, P.O. Box 273, Beavercreek, Ohio 45434-0273.

VK9C, VK9L & VK9X, COCOS KEELING, LORD HOWE AND CHRISTMAS ISLANDS

Joerg/YB6AVE/DL8WPX, Rudi/DJ5CQ, and Dietmar/DL3DXX, will be active from these islands during the month of February. Their activity will be on all bands, but they will put their emphasis on CW working Europe on the lower bands. Look for VK9XY on Christmas Island, February 2-8th and again on February 18-March 2nd. Look for VK9CR on Cocos-Keeling, February 8-18th.

They will fly to VK4-land after their last Christmas Island stay and probably spend some more days on Lord Howe Island working as VK9LM. QSL via DJ5CQ, Rudi Mueller, Alter Main 23, D-96179 Ebding/Bamberg.

VP2M MONTSEERRAT

Art, WA2UJH, will operate from February 16-26th. Art will be a Single/Op entry in the ARRL DX CW Contest. Their callsign is unknown, but while there Art will operate mostly CW on 40, 80 and 160 meters including activity on the WARC bands. QSL via NW2F.

VR2/VS6 & XX9 HONG KONG AND MACAO

Leo, K8PYD, will be active between February 1 - 28 from these two areas. He starts in VR2/VS6 and then as XX9YD in Macao. Leo mentions he has no problem switching from SSB to CW (if asked) anytime while he is on the air. He also mentioned he may venture elsewhere in the Far East pending access and permission to operate.

EAST MALAYSIA

Peter, PB0ALB, will be on the air as 9M8PFB from January 31 to March 8, with activity on 80 through 10 meter SSB only. No WARC band operating is planned. QSL via CBA.

COMOROS

From February 3 to 24, Wolfgang, DK7UY, will be active from here with CW, SSB and RTTY, 80 through 10 meters. There will be no direct QSLing. Wolfgang will send out cards to all log entries via the bureau.



Propagation

East - England (short path) 28.5 24.9 21.2 18.1 14.2 10.1 7.2 3.6 1.8 0.9 MHZ ! UT 00 06 12 18 24	East - England (long path) 28.5 24.9 21.2 18.1 14.2 10.1 7.2 3.6 1.8 0.9 MHZ ! UT 00 06 12 18 24	ABOUT THESE CHARTS The data on these pages are graphs showing forecasts for expected HF operating conditions between Australia and a number of important DX destinations. The information they contain is prepared by IPS Radio and Space Services, a division of the federal Department of Administration Services. IPS monitors changing radio conditions - which are affected most greatly by fairly predictable changes in solar activity - and issues reports and warnings based on that data. Stations in the eastern half of Australia should refer to graphs on the left hand page. The data on the right hand page is calculated for stations in the western half of the continent. Of course, if your location is in the middle of the continent try reading them <i>both</i> - then make an educated guess. The horizontal axis of each graph represents the hour of the day expressed in Universal Co-ordinated Time or UTC ("Z"). The vertical axis lists specific point frequencies within reach of each HF amateur band. The maps are easy to read. First go to the map which looks closest to the area in which you are interested. Look up from the time and across from the selected band to the point at which the two variables merge. Note which symbol - if any - appears at the intersection of the particular time and frequency combination for that area and refer to the legend (right) to find the sort of propagation most likely to apply. If the space is blank the forecast is not good - your time and frequency combination is unlikely to allow communication to the destination station.
East - Central and East Coast USA 28.5 24.9 21.2 18.1 14.2 10.1 7.2 3.6 1.8 0.9 MHZ ! UT 00 06 12 18 24	East - West Coast USA 28.5 24.9 21.2 18.1 14.2 10.1 7.2 3.6 1.8 0.9 MHZ ! UT 00 06 12 18 24	East - Japan 28.5 24.9 21.2 18.1 14.2 10.1 7.2 3.6 1.8 0.9 MHZ ! UT 00 06 12 18 24
East - South America 28.5 24.9 21.2 18.1 14.2 10.1 7.2 3.6 1.8 0.9 MHZ ! UT 00 06 12 18 24	East - West Indies 28.5 24.9 21.2 18.1 14.2 10.1 7.2 3.6 1.8 0.9 MHZ ! UT 00 06 12 18 24	East - North Africa 28.5 24.9 21.2 18.1 14.2 10.1 7.2 3.6 1.8 0.9 MHZ ! UT 00 06 12 18 24
East - Central Europe 28.5 24.9 21.2 18.1 14.2 10.1 7.2 3.6 1.8 0.9 MHZ ! UT 00 06 12 18 24	East - Middle East 28.5 24.9 21.2 18.1 14.2 10.1 7.2 3.6 1.8 0.9 MHZ ! UT 00 06 12 18 24	East - South Africa 28.5 24.9 21.2 18.1 14.2 10.1 7.2 3.6 1.8 0.9 MHZ ! UT 00 06 12 18 24
East - West Africa (short path) 28.5 24.9 21.2 18.1 14.2 10.1 7.2 3.6 1.8 0.9 MHZ ! UT 00 06 12 18 24	East - West Africa (long path) 28.5 24.9 21.2 18.1 14.2 10.1 7.2 3.6 1.8 0.9 MHZ ! UT 00 06 12 18 24	

forecaster March 1995

LEGEND TO SYMBOLS

- . Propagation is possible, but unlikely at this time and frequency on more than half the days of the month.
- % This frequency/time pair should allow communications on between 50% and 90% of the days of the month.
- F Your best bet: first "F" mode conditions should apply on at least 90% of days this month for the given time and frequency.
- E Propagation via the "E layer" expected on up to 90% of days of month at this time and frequency.
- P A fair mixture: up to 90% chance of a path using "F mode" and between 50% and 90% probability of an "E layer" path.
- B A good mixture: up to 90% chance of a path using either "E layer" or mixed "F" modes.
- M A good mixture of combined "F" modes - both first and second mode up to 90% of the time.
- S Second "F" mode conditions should apply on at least 90% of days this month for the given time and frequency.
- A High atmospheric absorption of the signal is likely - better to use a higher band. Too close to the ALF for good HF signals.

West - England (short path)

```

28.5
24.9
21.2 .....
18.1 %F%
14.2 .. AAAAFFFF%
10.1 A AFFFFF%
7.2 FFFFFFFF
3.6 FFFFFFFF
1.8 FFFFFFFF
0.9 FFFFFFFF
MHZ ! ! ! ! !
UT 00 06 12 18 24
    
```

West - England (long Path)

```

28.5
24.9
21.2 ..
18.1 .%.
14.2 .%FF%..
10.1 A
7.2
3.6
1.8
0.9
MHZ ! ! ! ! !
UT 00 06 12 18 24
    
```

West - Central and East Coast USA

```

28.5
24.9
21.2 ..
18.1 %..
14.2 AAAA %
10.1 ...%F
7.2 FFF
3.6 FFF
1.8 FFF
0.9 FFF
MHZ ! ! ! ! !
UT 00 06 12 18 24
    
```

Perth - West Coast USA

```

28.5
24.9 ..%
21.2 %
18.1 FFFF%
14.2 AAAA%
10.1 %
7.2 FFFFFFFF
3.6 FFFFFFFF
1.8 FFFFFFFF
0.9 FFFFFFFF
MHZ ! ! ! ! !
UT 00 06 12 18 24
    
```

West - South America

```

28.5
24.9
21.2 .....
18.1 %
14.2 FFFFFFFF%
10.1 AFF
7.2
3.6
1.8
0.9
MHZ ! ! ! ! !
UT 00 06 12 18 24
    
```

West - West Indies

```

28.5
24.9
21.2 ...
18.1 %
14.2 FFF%
10.1 %F
7.2 %
3.6 FF
1.8 FF
0.9 FF
MHZ ! ! ! ! !
UT 00 06 12 18 24
    
```

West - Japan

```

28.5 %
24.9 FMM%
21.2 %
18.1 %
14.2 %
10.1 %
7.2 %
3.6 %
1.8 %
0.9 %
MHZ ! ! ! ! !
UT 00 06 12 18 24
    
```

West - Central Europe

```

28.5
24.9
21.2 .....
18.1 %
14.2 AAAAFFFF%
10.1 F
7.2 FFFFFFFF
3.6 FFFFFFFF
1.8 FFFFFFFF
0.9 FFFFFFFF
MHZ ! ! ! ! !
UT 00 06 12 18 24
    
```

West - Middle East

```

28.5
24.9 %
21.2 %
18.1 %
14.2 %
10.1 MA
7.2
3.6
1.8
0.9
MHZ ! ! ! ! !
UT 00 06 12 18 24
    
```

West - North Africa

```

28.5
24.9
21.2 %
18.1 %
14.2 %
10.1 A
7.2
3.6
1.8
0.9
MHZ ! ! ! ! !
UT 00 06 12 18 24
    
```

West - Wes Africa (short path)

```

28.5
24.9
21.2 .....
18.1 %
14.2 FF%
10.1 F
7.2
3.6
1.8
0.9
MHZ ! ! ! ! !
UT 00 06 12 18 24
    
```

West - West Africa (long path)

```

28.5
24.9
21.2 .....
18.1 %
14.2 AAAA%
10.1
7.2
3.6
1.8
0.9
MHZ ! ! ! ! !
UT 00 06 12 18 24
    
```

West - South Africa (short path)

```

28.5
24.9
21.2 .....
18.1 %
14.2 %
10.1 M
7.2
3.6
1.8
0.9
MHZ ! ! ! ! !
UT 00 06 12 18 24
    
```


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- **Sony** ICF-2001D short wave comms rcvr, completely new, 7mth guar, with ant controller, ant mod, ant coupler, headset, wave hndbk — the lot \$600. Jim (06) 247 6575
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• **Kenwood** all-mode rigs: TS-43X, TS-711A, TS-660, TS-9500, plus a variety of other equip incl antennas. All genuine inquires write F Reid, VK2DLW, PO Box 142, Bellingen 2454

• **Kenwood** R-5000 comms rcvr with matching SP-430 spkr & MFJ

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• **Kenwood** SM-220 station monitor, with manual & leads, VGC, \$280. **Bench**er paddle, as new, \$90, or both for \$350. VK2CLB (02) 9997 1109

• **Kenwood** TH-25A 2M HT \$170 ono. Mike, ex-VK6MC (02) 957 5990. LAO

• **Tower:** 52ft hinged welded tubular steel guyed tower, oversize winch & cable, base-mounted rotator with tower-top thrust bearing, half wave 27MHz vertical, 12dB UHF CRS vertical, Werner Wulf 5-

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• **Wanted** urgently: copy of CCT diag for Icom IC-2SAT 2M HT. Will gladly refund any expenses. A. Eckersley, VK2BAG, Barry 2799

• **Wanted:** Any info to convert AWA 25M car phone to 2M. VK2BAG, 6 Sawyer St, Barry 2799

• **Wanted:** Kenwood or Yaesu QTR analogue world clock. Tony (042) 29 2573

• **Yaesu** FT-101ZD HF xcvr with mic, hndbk, dig display. \$600 ono. Shaun, VK2DSL (066) 86 7158. LAO

• **Yaesu** FT-102 HF xcvr mint cond \$850. **Yaesu** FC-902 500W tuner \$450. Both in orig cartons, with manuals. Richard, VK2CRB (02) 548 1451 or (015) 100 246. TLAO

• **Yaesu** FT-221 2M all-mode xcvr, \$300. **Kenwood** TS-520S HF xcvr, \$425. Both one owner. GC. Guy, VK2BBF (02) 850 8930 B/H. TLAO

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• **Yaesu** FT-767GX 160m-70cm all bands, all modes, all modules installed, orig packing, 3yrs old, cost \$4400, sell \$1800. Maurice, VK2XFI (02) 954 5106. LAO

VK3 AREA

• **Antennas:** Hy-Gain 2-el triband quad \$450. 5-el trapless triband beam \$350. Some work needed to both. David, VK3BY (03) 662 1648 B/H (03) 786 6323 A/H
• **Daiwa** CNW-418 ATU with cross-needle VSWR meter & 2-pos ant switch. EC \$250. DC pwr supp 13.8V @ 25A cont. EC \$300.
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• **Icom** IC-2400A dual-band 2/70 FM mobile xcvr. Forced sale of reliable favorite. Wide-range rx coverage, EC, with orig pack, manuals, etc. Best offer. Adam, VK3ALM 015 36 2799. LAO

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• **Kenwood** TS-520S HF xcvr with mic, hndbk, EC, one owner \$400. VK3NGT (059) 71 3364. LAO
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• **Yaesu** FT-411E 2M HT, has 2 batt packs, case, chrgr, VGC \$300. **Shinwa** 70cm HT, 16 mems, CTCSS, leather case etc \$180. Terry, VK3KJM (03) 438 5220. LAO
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• **Kenwood** TS-120V novice power HF xcvr;

VK4AREA

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- **Kenwood TS-140 HF** xcvr, as new, no mods \$1250. Bob, VK4MCI (07) 391 4885. LAO
- **Kenwood TS-440AT** HF xcvr plus **Kenwood PS-50** pwr supp. Both in good & spotless cond \$1800. I'm upgrading... Mick, VK4KCF (07) 284 7739. LAO
- **Kenwood TS-690 HF** + 6M xcvr, as new \$1850. **Kenwood TH-27A** 2M HT with CTCSS mic, etc \$350. **Philips 828** low-band VHF \$15. Bryan, VK4KWB (07) 288 3325. LAO
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- **Yaesu FT-901DM HF** xcvr, base or mob, all modes, built-in keyer, Yaesu spkr & ATU with SWR/pwr meter. Has four ant outlets, all leads, mic & hndbk, plus set of spare valves. \$1000 ono. Ted, VK4OW (071) 28 3489. LAO

VK5 AREA

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VK8 AREA

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- **Shack Clearance.** Kenwood TS-440S HF xcvr, as new \$1400. **Yaesu FT-707 HF** xcvr GC \$550. **Yaesu FP-707** pwr supp \$220. **Yaesu FC-707 ATU** \$100. **Yaesu FV-707 VFO** \$100. **Yaesu FTV-707 6M transverter** \$200. Or the whole package \$1000. **Icom IC-720A HF** xcvr \$600. **Ranger RCI-2950 10M** all-mode xcvr 25W, new \$500 sell \$250. **Dick Smith 6M 100W** amp kit, not built \$250. **Philips FM-1680** converted to 52.525 MHz FM, working \$50. Quantity ex-comm hi-lo VHF/UHF FM solid state mobiles, suit conversion. Philips, Plessey, STC, PYE, AWA \$20ea. **Tram X-L5 CB** converted to 10M \$35. Jeff, VK8GF (089) 52 2388 B/H, 52 1016 A/H.

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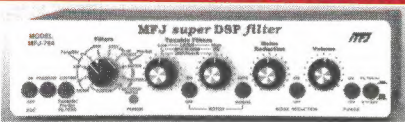
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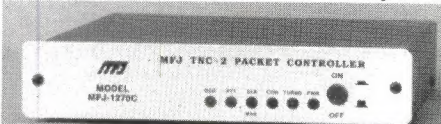
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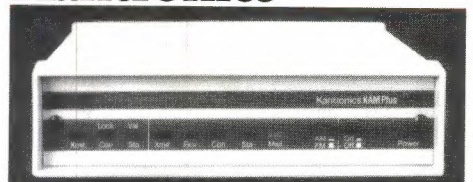
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